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AUSTIN SMITH, M.D.

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*A. M. A. Archives of Dermatology. Chicago.
*A. M. A. Archives of Industrial Health Chicago.
*A. M. A. Archives of Internal Medicine. Chicago.
*A. M. A. Archives of Neurology and Psychiatry. Chicago.
*A. M. A. Archives of Ophthalmology. Chicago.
*A. M. A. Archives of Otolaryngology. Chicago.
*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago
*A. M. A. Journal of Diseases of Children Chicago.
Acta allergologica Copenhagen
Acta cardiologica. Brussels
Acta chirurgica scandinavica Stockholm
Acta clinica belgica Brussels
Acta medica scandinavica Stockholm.
Acta neurológica latinoamericana. Buenos Aires.
Acta obstetrica et gynecologica scandinavica. Stockholm.
Acta paediatrica. Uppsala
Aggiornamenti sulle malattie da infezione. Rome.
American Heart Journal St Louis
American Journal of Clinical Pathology Baltimore.
American Journal of Digestive Diseases. New York.
American Journal of Gastroenterology. New York.
American Journal of the Medical Sciences Philadelphia
American Journal of Medicine New York
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology Chicago
American Journal of Psychiatry. New York.
American Journal of Roentgenol. and Radium Therapy, Springfield, Ill.
American Journal of Surgery. New York
American Journal of Tropical Medicine and Hygiene. Baltimore
American Review of Tuberculosis New York.
American Surgeon Baltimore.
Anales de la Facultad de medicina de Montevideo Montevideo
Anesthesiology. Philadelphia.
Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae Helsinki
Annales paediatrici Basel
Annals of Internal Medicine. Lancaster, Pa
Annals of Surgery Philadelphia
Antibiotic Medicine New York
Archives of Disease in Childhood London
Archives françaises de pediatrie Paris
Archivos del Instituto de cardiología de Mexico Mexico, D F.
Archiv für klinische Chirurgie Berlin
Archiv für [illegible]
Archives des [illegible] digestif Paris
Archivio di ortopedia Milan.
Archives of Pediatrics New York
Archivio di tisiolog [illegible] espiratorio Naples
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Arizona Medicine Phoenix, Arizona
Ärztliche Wochenschrift Berlin
Australian & New Zealand Journal of Surgery. Melbourne.
Australasian Annals of Medicine. Sydney
Beitrage zur klinischen Chirurgie. Munich
Beitrage zur Klinik der Tuberkulose Berlin
Bibliotek for laeger Copenhagen
Bollettino della Societa italiana di cardiologia Rome
Blood New York
Boletín de la Asociación medica de Puerto Rico Santurce
Brain London
British Heart Journal London
British Journal of Cancer. London
British Journal of Ophthalmology London
British Journal of Preventive and Social Medicine London.
British Journal of Radiology. London.
British Journal of Surgery Bristol.
British Journal of Tuberculosis and Diseases of the Chest London.
British Journal of Urology Edinburgh.
British Medical Journal. London
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the Los Angeles Neurological Society. Los Angeles.
California Medicine San Francisco.
Canadian Medical Association Journal Montreal.
Cancer. Philadelphia
[illegible]
[illegible] e Salisbury.
[illegible]
[illegible] Milan.
[illegible]
Circulation Research New York
Clinica pediatrica. Bologna.
Danish Medical Bulletin Copenhagen.
Delaware State Medical Journal. Farnhurst, Del.
Deutsche medizinische Wochenschrift. Stuttgart.
Deutsche Zeitschrift fur Nervenheilkunde. Berlin.
Diabetes. New York.
Die Medizinische. Stuttgart.
Diseases of the Chest. Chicago.

East African Medical Journal. Nairobi
Eye, Ear, Nose & Throat Monthly. Chicago.
Fertility and Sterility. New York.
Gastroenterologia. Basel.
Gastroenterology. Baltimore.
Gazzetta medica italiana Turin.
German Medical Monthly. Stuttgart.
Harefuah Tel-Aviv.
Hawaii Medical Journal. Honolulu.
Helvetica paediatrica acta. Basel.
Illinois Medical Journal. Chicago
Industrial Medicine and Surgery. Chicago
Irish Journal of Medical Science. Dublin.
Journal of Allergy. St. Louis
Journal of the American Geriatrics Society. Baltimore
Journal of the American Medical Women's Association. New York.
Journal of Aviation Medicine. St Paul.
Journal of Bone and Joint Surgery. Boston and London.
Journal of Chronic Diseases. St. Louis.
Journal of C[illegible] nd Metabolism. Springfield, Ill.
Journal of [illegible] New York.
Journal of [illegible] Town.
Journal of the Florida Medical Association Jacksonville.
Journal of the Indiana State Medical Association Indianapolis.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Irish Medical Association. Dublin.
Journal of Kansas Medical Society. Topeka.
Journal of the Kentucky State Medical Association. Louisville.
Journal of Laboratory and Clinical Medicine St. Louis.
Journal-Lancet. Minneapolis
Journal of the Louisiana State Medical Society. New Orleans.
Journal of the Maine Medical Association Brunswick.
Journal of the Medical Association of Georgia. Atlanta
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Society of New Jersey Trenton.
Journal of Mental Science London
Journal of Michigan State Medical Society. St. Paul.
Journal of the Mount Sinai Hospital New York.
Journal of the National Cancer Institute. Washington, D C.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Experimental Neurology. New York.
Journal of Neurosurgery. Springfield, Ill
Journal of Obstetrics and Gynaecology of the British Empire. London.
Journal of Pediatrics. St. Louis.
Journal of South Carolina Medical Association Florence.
Journal of Thoracic Surgery. St. Louis.
Journal of Urology. Baltimore.
Khirurgiya. Moscow.
Kinderarztliche Praxis. Leipzig
Klinische Medizin. Vienna
Klinicheskaya meditsina Moscow.
Krebsarzt. Vienna
Lancet. London.
Lotta contro la tubercolosi Rome.
Maryland State Medical Journal. Baltimore.
Medical Annals of the District of Columbia. Washington, D. C.
Medical Journal of Australia Sydney.
Medicine Baltimore.
Medicina clinica. Barcelona
Minerva cardioangiologica Turin
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Minnesota Medicine. St Paul
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Monatsschrift fur Kinderheilkunde Berlin.
Munchener medizinische Wochenschrift. Munich.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Haarlem.
Neurology. Minneapolis
New England Journal of Medicine. Boston.
New York State Journal of Medicine New York.
New Zealand Medical Journal. Wellington
North Carolina Medical Journal Winston-Salem.
Northwest Medicine Seattle.
Obstetrics and Gynecology. New York
Obstetricia y ginecología latino-americanas. Buenos Aires.
Pediatria Naples
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Lown, B., and Levine, S. A.:
Current Concepts in Digitalis Therapy, Boston,
Little, Brown & Company, 1954, p. 23, par. 2.

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the full committee a new bill on the registration of welfare and pension plans, most of which involve health insurance.

The measure will lay over until January, when the full committee will take it up.

The draft legislation somewhat resembles an earlier bill sponsored by three committee members, Senators Douglas, Murray, and Ives. A major change would place administration of the proposed law in the hands of the Secretary of Labor instead of the Securities and Exchange Commission. The subcommittee, headed by Senator Kennedy, heard conflicting testimony on this subject.

The bill provides for compulsory registration and reporting to the Secretary of all types of plans whether run by management or unions. The reports would be available to the public, and beneficiaries of plans would be entitled on request to receive summaries of the reports from the operators of the plans. Financial reports would have to be based on certified units.

A policy statement in the bill notes a "rapid and substantial growth" of employee welfare and pension funds and says that they have become an important factor affecting the stability of employment as well as the continued well-being and security of millions of employees and their dependents.

Accordingly, it is desirable "in the interests of employees and their beneficiaries for the protection of the revenue of the United States and to provide for the general welfare and the free flow of commerce, that disclosure be made with respect to the operation and administration of such plans."

Both this committee and a House Education and Labor Committee have uncovered a number of abuses in the conduct of such plans.

BIOLOGICAL EFFECTS OF RADIATION STILL IN DISPUTE

The country's foremost authorities on the biological effects of radiation still are far from agreement on (*a*) the dangers to which man already has been exposed and (*b*) what continued testing of weapons will produce in man.

Summarizing testimony presented in eight days of hearings, the Joint Committee on Atomic Energy says:

"There was general agreement [among witnesses] that any amount of radiation, no matter how small the dose, increases the rate of genetic mutation in a population. There was, on the other hand, a difference of opinion as to whether a very small dose of radiation would produce similarly an increased incidence of such somatic [nongenetic] conditions as leukemia or bone cancer, or a decrease in life expectancy, in a population. . . .

"There were differences of opinion on how to forecast the consequences of further testing. The differences hardest to reconcile appear to be those concerning the biological effects of radiation.

"Pending a resolution of differences, it would appear from the information presented that the consequences of further testing over the next several generations at the level of testing of the past five years could constitute a hazard to the world's population. It is very difficult, if not impossible, to forecast with any real precision the number of people that would be affected."

The report describes how strontium from fall-out reaches man through vegetables that have become contaminated, through milk from contaminated cows, and through other sources. It summarizes the effect of strontium as follows, a conclusion apparently agreed to by the witnesses:

"Strontium participates in biological processes resulting in eventual deposition in the human body, almost entirely in bone.

"Strontium stays in the bones a long time and has a 28-year half-life; that is, the beta rays emitted by strontium 90 and its daughter element yttrium 90 irradiate the bone over a long period of time. But strontium 90, concentrating in the bones and emitting beta radiation, is primarily a somatic not a genetic hazard."

JOINT BLOOD COUNCIL LAUNCHES NEW SURVEY OF TRANSFUSION SERVICES

A second and more extensive mail questionnaire is being distributed to more than 5,200 hospitals, blood banks, and other blood transfusion services by the Joint Blood Council. The council and its sponsoring organizations are seeking to coordinate the country's blood banking facilities, practices, and terminology.

The first survey, conducted last year, provided the first reliable estimate in six years of how much blood is being transfused in the United States. The council said that the survey also showed that blood transfusion services are operating under handicaps that need remedy. The latest survey is designed to provide data to bring about the remedies. The council cites, for example, the fact there is no precise definition of the term "unit" of blood; in some instances, a unit is 480 cc. and in others, 250 cc.

The new survey includes these questions: Are blood transfusion services capable of rapid expansion in time of emergency? Where are they located? How are they organized and operated? What areas do they serve? What is their annual volume of business? How do they relate to allied services such as tissue banks?

Federal agencies concerned with hospitals, as well as pharmaceutical and hospital supply firms, are expected to derive benefit from the data collected, the council points out.

Organizations sponsoring the council are the American Medical Association, American Hospital Association, American Association of Blood Banks, American Red Cross, and the American Association of Clinical Pathologists.

VA DEVELOPS INSTRUMENT TO MEASURE RADIOACTIVE PARTICLES IN BODY

An instrument so sensitive that it can measure the small amounts of radioactivity naturally present in the human body has been developed by the Veterans Administration. The device, titled a total body radioactivity counter, was designed and developed by Dr. Gerald J. Hine of the VA Hospital in Boston.

The counter will be used to study some functions by tracing activity of natural radioactivity of the body and also to chart the course of radioisotopes introduced into the body. Because only small amounts of radioactivity would have to be put in the body, the new counter will have the advantage of making possible longer study of the patient than was possible before, according to the VA.

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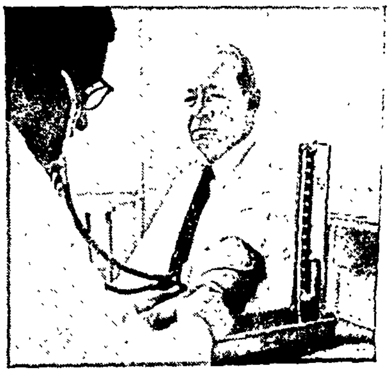

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[1] Coan, J. P., McAlpine, J. C., and Boone, J. A.: J. South Carolina M. A. 51:417 (Dec.) 1955.

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THE PROBLEM OF FEVER IN PATIENTS WITH VALVULAR HEART DISEASE

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The clinical situation in which fever and valvular heart disease coexist presents a problem in differential diagnosis and management which is quite different from that associated with either condition alone. The causes of fever more or less peculiar to valvular heart disease are active rheumatic fever, bacterial endocarditis, drug fever, embolism, congestive heart failure, hemoglobin pneumonia, systemic lupus erythematosus, and atrial myxoma or thrombus. Bacterial endocarditis should be given first consideration when fever and heart murmur coexist.

THE proper interpretation of fever in patients with valvular heart disease can be one of the most perplexing problems confronting the internist. The clinical situation in which fever and valvular heart disease coexist presents a problem in differential diagnosis and management which is quite different from that associated with either condition alone. In a patient with fever and valvular heart disease, the physician must, of course, consider all the usual causes of fever. Individuals with heart murmurs have at least the usual susceptibility to the infectious, neoplastic, and other diseases which produce fever. It is with the group of diseases which causes fever more or less peculiar to valvular heart disease that we are primarily concerned.

We have been impressed with the relatively high frequency with which this problem arises in general hospital practice. No attempt has been made to review all the patients presenting this problem in the Johns Hopkins Hospital. Therefore, no statistical analysis of the final diagnoses or of the incidence of the condition is justified. However, 25 patients who posed this problem in striking form were observed by us during the years 1951 to 1954 when we were resident physicians of the Osler Medical Service. The conclusions reached are based on a review of these 25 cases listed in the table. The cases of three patients are described in detail in this paper (cases 1, 2, and 14).

The causes of fever more or less peculiar to valvular heart disease are as follows: 1. Active rheumatic fever (cases 1 through 10). 2. Postcommissurotomy syndrome (cases 11 and 12). 3. Bacterial endocarditis (cases 13 and 14). 4. Drug fever. 5. Embolism (cases 15 through 19). 6. Miscellaneous. Under this grouping are included congestive heart failure, hemoglobin pneumonia (cases 20 and 21), systemic lupus erythematosus (case 22), and atrial myxoma or thrombus (cases 23 through 25).

We have not attempted to give a comprehensive discussion of each disease. The discussion is oriented about the problem of the patient with fever and a heart murmur, and the various diseases are mentioned only as they enter into the consideration of such a patient.

Active Rheumatic Fever or Subacute Bacterial Endocarditis

In both cases 1 and 2 the major diagnostic possibilities were active rheumatic fever and bacterial endocarditis.

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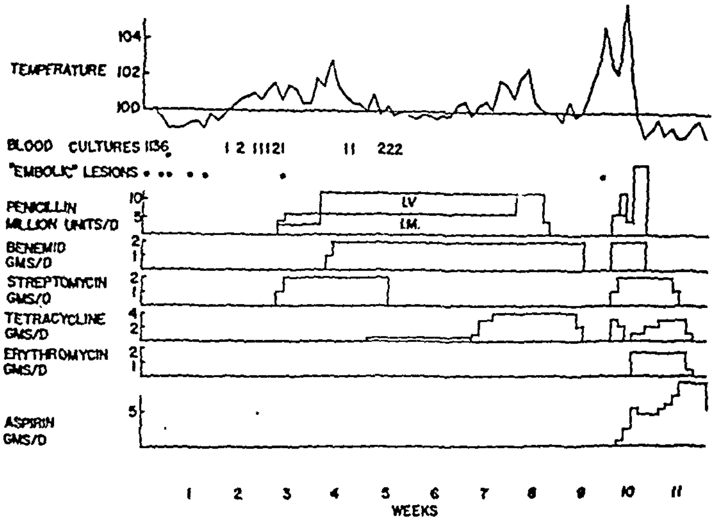
CASE 1.—A 27-year-old male schoolteacher gave no definite history of acute rheumatic fever, but exertional dyspnea and a heart murmur had been present since he was 12 years of age. The patient reported several illnesses characterized by episodes of fever and dyspnea, described as "pneumonia." Four months prior to the final hospital admission he complained of increasing exertional dyspnea, cough, orthopnea, and paroxysmal nocturnal dyspnea. There were several episodes of malaise, drenching night sweats, and temperature to 103 F (39.44 C); each of these episodes subsided with penicillin therapy. Three weeks prior to admission, painful swelling of the upper part of the abdomen was noted. For the first time the patient complained of swelling and stiffness of the ankles, knees, and knuckles. The joint symptoms persisted only a few days, but malaise, fever, and symptoms of increasing cardiac decompensation continued.

The patient was pale and chronically ill. Two typical splinter hemorrhages were seen beneath the nails of the second and fourth fingers of the right hand. There were a few fresh petechiae on the right side of the soft palate. There was no evidence of joint disease. There was generalized lymph node enlargement. The heart was enlarged. There were signs of mitral stenosis and atrial fibrillation. The liver was large and tender, but the spleen was not felt.

The patient's hospital course is illustrated in the figure. During the first two weeks the peripheral leukocyte count remained below 10,000 per cubic millimeter; the sedimentation rate (Wintrobe-Landsberg method) was 30-40 mm. per hour; the hematocrit reading was normal. The urine contained neither albumin nor red blood cells.



Clinical course of patient in case 1.

Vigorous therapy was directed at the failing heart with essentially no effect. The patient remained afebrile, but new "embolic" lesions continued to appear. The splinter hemorrhages seen on admission disappeared, and new ones developed. In the mucous membranes, petechiae appeared and disappeared. Bacterial endocarditis was suspected because of the history of fever and the petechial lesions. Twenty blood cultures were obtained during this period of observation, and Streptococcus faecalis grew from one. In view of the positive culture and the numerous lesions, interpreted as embolic, it was decided to treat the patient for bacterial endocarditis.

During the third week he was started on therapy with 6 million units of penicillin and 2 Gm. of streptomycin-dihydrostreptomycin a day. During the first week of antibiotic administration, he showed no improvement, his fever increased, and, because of this apparent lack of response, tetracycline was also given. After five weeks, the penicillin and streptomycin were withdrawn, but tetracycline therapy was continued. For five days the patient remained afebrile, but then the fever recurred, with the temperature reaching 105 F (40.56 C) eight days after withdrawal of the antibiotics. New petechiae appeared; the patient complained of dyspnea and cough; and the leukocyte count rose to 20,000 per cubic millimeter. The hematocrit reading at that time was 43%.

The physicians managing the case felt obligated to reinstitute antibiotic therapy, and this was done at the end of the 10th week, with 6 million units of penicillin, 2 Gm. of probenecid (Benemid), 2 Gm. of tetracycline, and 1.6 Gm. of erythromycin being given daily. Blood cultures taken during the febrile period between courses of therapy were sterile. The temperature continued to rise in spite of the antibiotics, reaching 106 F (41.11 C) at the end of the 10th week. Throughout the hospital course, heart failure was a major problem. The patient's chief and often only complaint was dyspnea. It had been difficult to control the ventricular rate with 0.2 mg. of digitoxin a day, and the pulse deficit increased with the rising temperature. The patient required oxygen almost constantly. At the beginning of the 11th hospital week, aspirin in a dosage of 5-6 Gm. a day was given. With this regimen the temperature remained normal more consistently than at any time in previous weeks. The ventricular rate fell to 70 per minute. The patient remained afebrile for the next 11 days but continued to complain of dyspnea. During the 12th hospital week he developed acute pulmonary edema and died.

At postmortem examination, lesions of acute and chronic rheumatic fever were seen in the myocardium, endocardium, valves, and pulmonary artery. There were small organized thrombi in the lungs and liver. There was absolutely no evidence of active or healed bacterial endocarditis.

CASE 2.—At 13 years of age the patient in case 2 experienced an initial episode of painful swelling of the knees and ankles. She was first admitted to the hospital when she was 17 years old because of fever and increasing dyspnea after dental extractions. Physical examination revealed fever, the auscultatory signs of mitral stenosis, atrial fibrillation, and pulmonary congestion. The peripheral leukocyte count was 18,000 per cubic millimeter, and the sedimentation rate was 38 mm. per hour. The patient was treated with 2.4 Gm. of aspirin a day; with this treatment she became afebrile and improved symptomatically. She was discharged on maintenance therapy with aspirin and prophylactic sulfadiazine.

Nine weeks after discharge she was readmitted with fever, joint pains, and a rash. The fever and joint pains responded promptly to aspirin and bed rest. However, after two weeks of improvement the temperature rose to 101-102 F (38.33-38.89 C) and could not be controlled with aspirin in doses of 4.8 Gm. daily. The appearance of cutaneous petechiae aroused suspicion of bacterial endocarditis. Thrombosis of the right innominate vein developed, and because of this complication heparin sodium therapy was instituted. With great suddenness petechiae appeared on the soft palate, arms, and chest. The prothrombin time was found to be 50 seconds (prothrombin concentration was less than 25% of normal) on the day the petechial lesions appeared. No bishydroxycoumarin (Dicumarol) had been given, but it was felt that the combination of hepatic congestion and aspirin could well account for the prolonged prothrombin time. Vitamin K was given, with prompt return of the prothrombin time to 29 seconds (prothrombin concentration was 40% of normal). Petechiae continued to appear on the palate and the extremities. Repeated blood cultures were sterile. The temperature remained between 101 and 103 F (38.33 and 39.44 C). There was great difficulty controlling the heart rate with digitalis, and signs of cardiac failure increased. Because of the continuing fever, petechiae, and venous thrombosis, it was decided to treat the patient for bacterial endocarditis. Fifteen million units of penicillin was administered daily for three weeks, with a slow but definite response in the amount of fever. The response was of short duration.

During treatment with penicillin the patient developed tenderness at injection sites, and it was felt that chemical myositis might be contributing to her fever. After a week's observation of the patient while she was on therapy with penicillin, it was clear that her condition was worsening and the drug was withdrawn. The temperature dropped to normal as the myositis subsided The patient developed massive swelling of the face and neck, presumably secondary to thrombosis of the major venous channels Fever returned, and the patient died during the eighth week of hospitalization

Rheumatic myocarditis with Aschoff bodies was found at autopsy. There was rheumatic endocarditis but no evidence of bacterial vegetations There were thrombi in the atria, and multiple, remote and recent, pulmonary emboli were noted. There were multiple venous thromboses involving jugular and axillary veins

In both of these cases the incorrect diagnosis of bacterial endocarditis was made and treatment given. This diagnostic error cannot be criticized Bacterial endocarditis should be a prime consideration in a patient with rheumatic heart disease and fever. It is usually curable with proper treatment and is almost invariably fatal if treatment is withheld.

The diagnosis of endocarditis is confirmed by the demonstration of bacteremia, therefore, adequate blood cultures must be obtained as the first step in the investigation of fever in patients with valvular heart disease. There is a great deal of information in the literature concerning the number of cultures that may be considered adequate, the duration of the

Review of Twenty-five Cases of Valvular Heart Disease with Fever

Case No	Sex	Age, Yr	Heart Disease	Temperature, F (C)	Complicating Features	Cause of Fever	Remarks
1	M	27	Rheumatic heart disease, mitral stenosis, atrial fibrillation	101 103 (38 33 39 44)	Petechiae, splinter hemorrhages	Active rheumatic myocarditis (autopsy)	See text
2	F	17	Rheumatic heart disease, mitral stenosis, atrial fibrillation	101 103 (38 33 39 44)	Petechiae, venous thromboses penicillin myositis	Active rheumatic myocarditis (autopsy)	See text
3	F	30	Rheumatic heart disease mitral regurgitation	100-101 (37 78-38 33)		Active rheumatic fever (course)	Defervescence with hydroxy phenyl cinchoninic acid
4	F	36	Rheumatic heart disease, mitral stenosis	Low grade, intermittent	Hematuria pulmonary infarction, splinter hemorrhages	Active rheumatic endocarditis with multiple emboli (course)	All studies for bacterial endocarditis negative
5	F	35	Rheumatic heart disease, mitral regurgitation, aortic regurgitation	100-101 (37 78-38 33)	Intractable heart failure	Acute and chronic rheumatic myocarditis (autopsy)	
6	F	27	Rheumatic heart disease, mitral stenosis, aortic regurgitation, atrial fibrillation	100-101 (37 78-38 33)	Anemia, Roth s spots in fundus, night sweats	Rheumatic myocarditis (autopsy)	Dental extraction preceding admission
7	M	45	Rheumatic heart disease, mitral stenosis, mitral regurgitation, aortic regurgitation	101 102 (38 33 38 89)	Hematuria, myalgia, splenomegaly	Active rheumatic fever (course)	
8	F	30	Rheumatic heart disease, mitral stenosis	103 (39 44)	Heart failure	Active rheumatic myocarditis (course)	Activation of rheumatic fever after cardiac catheterization
9	M	19	Rheumatic heart disease, mitral stenosis, mitral regurgitation, aortic regurgitation	100-101 (37 78-38 33)	Heart failure, splenomegaly, digital clubbing, hematuria	Active rheumatic myocarditis (autopsy)	Perionychial erythema also striking
10	F	36	Rheumatic heart disease, mitral stenosis	100-101 (37 78-38 33)	Heart failure, splinter hemorrhages	Re stenosis of mitral valve after commissurotomy (autopsy)	No definite histological evidence of rheumatic activity, but re-stenosis of valve 4 yr after operation taken as evidence of rheumatic activity One blood culture positive for Streptococcus faecalis
11	M	24	Rheumatic heart disease, mitral stenosis	101 104 (38 33-40 00)	Petechiae, tender, swollen fingertips	Active rheumatic myocarditis (course)	"Postcommissurotomy *syndrome*"
12	F	36	Rheumatic heart disease, mitral stenosis	101 103 (38 33-39 44)	Pleural effusion, heart failure	Active rheumatic myocarditis (course)	[illegible]
13	M	34	Aortic regurgitation, rheumatic heart disease (?), syphilis ( )	100-103 (37 78-39 44)	Heart failure	Bacterial endocarditis (autopsy), syphilitic aortitis	20 blood cultures negative
14	M	18	Rheumatic heart disease, mitral regurgitation	98-102 (36 67-38 89)	Heart failure, pericarditis	Bacterial endocarditis, coronary embolism (autopsy)	Temperature fell with hydroxy phenyl cinchoninic acid, see text
15	F	39	Rheumatic heart disease, mitral stenosis, aortic regurgitation	100-103 (37 78-39 44)	Heart failure, splenomegaly, pulmonary infarction	Pulmonary and coronary embolism (autopsy)	Clinical impression rheumatic myocarditis
16	F	41	Rheumatic heart disease, mitral stenosis, mitral regurgitation	100-102 (37 78-38 39)	Heart failure, atrial fibrillation	Subacute and chronic rheumatic endocarditis and myocarditis, splenic and cerebral embolism (autopsy)	
17	F	34	Rheumatic heart disease, mitral stenosis, aortic regurgitation	101 104 (38 33-40 00)	Pleural effusion, heart failure	Pulmonary and splenic embolism (autopsy)	
18	M	49	Rheumatic heart disease, aortic regurgitation, aortic stenosis	100-101 (37 78-38 33)	Petechiae, splinter hemorrhages, splenic infarction	Sterile embolization, 16 blood cultures negative (course)	Endocarditis treated 4 mo previously
19	F	27	Rheumatic heart disease, mitral regurgitation	99 100 (37 22 37 78)	Splinter hemorrhages	Sterile embolization, 7 blood cultures negative (course)	Endocarditis treated 3 mo previously
20	M	28	Rheumatic heart disease, mitral stenosis	99 (37 22)	Hemoptysis, night sweats	Chronic passive congestion of lungs, recent and organized pulmonary hemorrhage (autopsy)	Tuberculosis considered clinically
21	M	39	Rheumatic heart disease, mitral stenosis	103 (39 44)	Hemoptysis, night sweats	Hemoglobin pneumonitis (course)	381 million units penicillin for subacute bacterial endocarditis
22	M	44	Mitral stenosis	100-103 (37 78-39 44)	Hematuria, clubbed fingers, pericarditis, splenomegaly	Systemic lupus erythematosus (autopsy)	
23	F	58	Rheumatic heart disease, mitral stenosis, mitral regurgitation, (antemortem diagnosis)	100-102 (37 78-38 89)	Fever, weight loss, pulmonary and systemic embolism	Myxoma of left atrium, embolization of pulmonary and systemic circulations (autopsy)	
24	F	37	Rheumatic heart disease, mitral stenosis, mitral regurgitation	101 (38 33)	Syncopal attacks	"Ball valve" thrombus, left atrium (autopsy)	
25	F	33	Rheumatic heart disease, mitral stenosis, mitral regurgitation, (antemortem diagnosis)	101 103 (38 33-39 44)	Systemic embolism	Myxoma, left atrium	Long treatment for subacute bacterial endocarditis

culturing period, and ideal bacteriological techniques.[1] These factors should be considered before it is stated that bacteremia is not present.

In evaluating the results of the blood cultures it is important to remember the following points: (1) a certain percentage of patients with bacterial endocarditis (estimated at between 10-15%) have consistently negative blood cultures, as in case 13[2]; (2) positive blood cultures may occasionally be obtained from normal individuals[1a] and from individuals with valvular heart disease who do not have endocarditis,[3] as in cases 1 and 10; and (3) when endocarditis exists, the blood cultures are usually either all positive or all negative.[1a] These considerations, for example, cast some doubt on the significance of the single positive culture in case 1 when 28 other cultures were negative.

The patients in both cases 1 and 2 died of the consequences of active rheumatic carditis. In case 1 the clinical diagnosis was not made until the last weeks of the patient's life. In both cases the attending physicians were led to the diagnosis of bacterial endocarditis by a variety of incorrectly interpreted findings.

The diagnosis of rheumatic activity in patients with long-standing rheumatic valvular disease is difficult. The classic manifestations of the disease as it is seen in children are often absent in adult patients, especially in those in the southern part of the United States.[4] The diagnosis of rheumatic activity is made especially difficult by the lack of a precise definition and even a single pathognomonic clinical criterion. Histological evidence obtained from atrial appendages removed at the time of mitral valve commissurotomy correlates poorly with clinical and laboratory findings.[5] The various serologic tests, usually positive in rheumatic fever, are of some use in following the course of the disease but are not specific, can be positive in other diseases, and, in general, are of limited diagnostic significance.[6]

The diagnosis of rheumatic fever is essentially a clinical one. Joint manifestations, erythema marginatum, and subcutaneous nodules are extremely helpful when present, but, in our experience, such definite signs are usually lacking in the type of patient under discussion. Minor arthralgias are common but often are no more prominent than the skeletal symptoms of individuals acutely ill with bacterial endocarditis. Objective evidence of joint involvement should, however, be considered clinical evidence of the highest order for the existence of rheumatic disease. In patients with long-standing rheumatic heart disease, fever and progressive cardiac failure may be the only signs of active rheumatic myocarditis. In retrospect, it is easy to see that fever and heart failure were the predominant manifestations throughout the courses of the patients in cases 1 and 2. Atrial fibrillation, associated with unusual difficulty in controlling the ventricular rate with digitalis, suggests active myocarditis. In the past there was a clinical axiom that bacterial endocarditis did not develop in patients with atrial fibrillation. Although it is clear that this axiom is not invariable, bacterial valvulitis does occur less frequently in these patients and, in general, in the advanced stages of valvular heart disease.

A therapeutic trial of aspirin is a dubious method for diagnosis of active rheumatism. In case 1 such a trial seemed helpful in that a fall in temperature and pulse rate and improvement in the degree of cardiac compensation accompanied the second course of aspirin. In contrast, there was no fall in temperature in the patient in case 2 when she was given 4.8 Gm. of aspirin a day, a dose which produced symptoms of salicylate intoxication. This lack of response was taken as evidence against active rheumatic fever and led to the diagnosis of bacterial endocarditis.

Whenever possible, therapeutic trials of antibiotic therapy should be avoided, as they are rarely helpful and often confusing. Antibiotics are frequently given to patients with fever and valvular heart disease on the basis of a presumptive diagnosis of bacterial endocarditis. It is impossible not to attach at least some diagnostic significance to the response of fever to this therapy, but this can be hazardous whether the temperature rises, falls, or remains unchanged. Body temperature is usually selected as the sign to follow for response to therapy, because it can be measured easily, graphed, and treated quantitatively. It is not, however, the only sign of therapeutic success in the treatment of bacterial endocarditis. Weight gain without heart failure, increase in appetite, and a general sense of well-being, though more difficult to evaluate, are possibly more reliable indexes of progress.

In the patients in cases 1 and 2, minor falls in temperature which coincided with antibiotic administration were taken as evidence corroborating the diagnosis of bacterial endocarditis. In case 1, after penicillin in a dosage of 6 million units per day had been administered for several days with no sustained fall in temperature, it was assumed that the dosage was inadequate. The dosage was doubled, and the temperature fell to the normal range. This sequence of events was taken as further confirmation of the diagnosis of bacterial endocarditis. A similar, although less impressive, response was interpreted as evidence for endocarditis in case 2.

Occasionally it is necessary to institute treatment for bacterial endocarditis without bacteriological confirmation of the diagnosis. In evaluating response to therapy, the following possibilities must be kept in mind: subsidence of fever may indicate the existence of endocarditis, or it may be only a chance variation in the course of another disease. Continued fever may indicate that the dosage is inadequate, that the correct drug is not being used, that the diagnosis is incorrect, or that the patient has developed a febrile reaction to the therapeutic agent.

As yet, the experience with the combination of antibiotics and adrenal corticoids in patients with subacute bacterial endocarditis is too limited to justify any final conclusion about either benefits or risks. Our personal experience is limited to a single patient in whom the administration of cortisone for a penicillin reaction had no evident adverse effect on the course of the subacute bacterial endocarditis treated concurrently with large doses of penicillin. In the literature good results are reported by some[7] and poor results by others.[8]

Drug Fever

Febrile reactions to antibiotics are largely responsible for the confusion associated with therapeutic trials. Penicillin, the most commonly used agent in the treatment of bacterial endocarditis, is capable of producing fever in at least two ways. When the fever rises gradually after a period of a week or more of intramuscular administration of penicillin, sterile inflammation at the injection sites should be suspected. In case 2, tenderness at the injection sites facilitated the diagnosis of chemical myositis. Often the patient does not complain, and it is only by careful palpation that the indurated, slightly tender areas of myositis are detected deep in the muscle. The diagnosis is confirmed by the gradual defervescence which accompanies the substitution of the intravenous for the intramuscular route of administration.

Fever caused by penicillin does not present a diagnostic problem when accompanied by a rash, but fever is often the only manifestation of hypersensitivity to the drug and prompt defervescence may follow its withdrawal. The serum sickness type of reaction[9] characterized by myalgia, arthritis, lymphadenopathy, and splenomegaly often closely simulates rheumatic fever and, therefore, assumes special significance in patients in whom rheumatic activity is always a definite possibility.

Fever may result from the use of many other drugs commonly employed in the management of patients with valvular heart disease. Febrile reactions to quinidine, procaine amide, and mercurial diuretics have been reported. In one of our patients, quinidine was responsible for fever, petechial hemorrhages, and splenomegaly—a clinical picture closely simulating bacterial endocarditis. To our knowledge, digitalis has never been proved to be responsible for drug fever, although urticaria has been observed[10] and we have recently seen erythema multiforme in a patient who received separate administrations of digitalis leaf and digitoxin.

Evaluation of Embolic Lesions

Petechial hemorrhages, embolism in retinal vessels, and "splinter hemorrhages" under the nails are important signs in patients with valvular heart disease. These lesions, commonly referred to as hemorrhagic or embolic, are usually thought to be pathognomonic of bacterial endocarditis, and often a prolonged course of penicillin therapy has been started because of one splinter hemorrhage or one shower of petechiae. These lesions are of great significance and should be diligently sought, but caution must be exercised in their interpretation.

Hemorrhagic and embolic lesions appeared periodically in patients in cases 1 and 2, and yet neither patient had bacterial endocarditis. These lesions have been noted in other patients with active rheumatic fever and in patients with the postcommissurotomy syndrome (case 11). A strikingly similar case has been reported in which splenomegaly, hematuria, and petechiae were seen in a patient dying of rheumatic carditis.[11] Petechial lesions and splinter hemorrhages may occur on the basis of the rheumatic process alone and in the absence of bacterial vegetations of the heart valves. The lesions may be the result of sterile embolization from fibrillating atria or rheumatic valvulitis or may represent a local vascular component of the rheumatic process. In two patients (cases 18 and 19) with long-healed bacterial endocarditis, splinter hemorrhages have been seen with no evidence of active infection, and it is presumed that sterile emboli from healed vegetations were responsible. Sterile emboli were apparently responsible for typical Roth's spots in the retinas in another patient (case 6) who did not have bacterial endocarditis.

Petechiae or splinter hemorrhages may occur from trauma, for example, in the oral cavity from ill-fitting dentures or in the nail beds from injury. Reactions to drugs, with or without thrombocytopenia, may be accompanied by hemorrhagic lesions, which, when few in number, may suggest bacterial endocarditis. Before petechial lesions are attributed to embolism it should be demonstrated that the blood coagulation mechanism is functioning normally. The hepatic congestion of heart failure can be accompanied by a prolonged prothrombin time and excessive bleeding. In case 2 the prolonged prothrombin time was attributed to the "bishydroxycoumarin-like" effect of aspirin superimposed on the impaired hepatic function resulting from congestion. This increased sensitivity of the congested liver to bishydroxycoumarin and aspirin is especially important, as both of these drugs may be given in the situation under consideration. Frick[12] attributes the bleeding tendency to a direct effect of salicylates on capillaries. The thrombosis of the great veins which occurred in case 2, while an unusual complication, occasionally develops with severe heart failure.

In both cases 1 and 2, old and recent pulmonary emboli were present. This finding is very common in patients dying with chronic rheumatic heart disease, particularly when atrial fibrillation has existed for an appreciable period (cases 4, 15, and 17). Pulmonary embolism without accompanying rheumatic myocarditis was a "good diagnosis" in case 1. The history of recurrent bouts of pneumonia suggests previous episodes of embolism. If the emboli are small, the classic signs and symptoms, such as cough, hemoptysis, friction rub, and typical x-ray changes, may be absent. As the pulmonary vascular tree is progressively occluded by embolization, chronic right ventricular failure can develop and the slowly developing pulmonary vascular obstruction may have effects resembling those of rheumatic myocarditis. Fever, progressive and uncontrollable heart failure, and tachycardia are sometimes the only manifestations of recurrent pulmonary embolism.

In cases 1 and 2 petechiae and splinter hemorrhages were encountered in association with active rheumatic carditis. Splenomegaly, another finding often considered specific for bacterial endocarditis, also occurs in patients with rheumatic heart disease in the absence of bacterial endocarditis.[13] Congestive heart failure or splenic infarction explains some, but by no means all, of these instances of splenomegaly. In cases 7, 9, and 15, and in cases reported by others, active rheumatic fever seemed, even at autopsy, to be the sole basis for the splenic enlargement. The patient in case 9, a 19-year-old boy who died with active rheumatic carditis, also had marked digital clubbing, perionychial erythema, and hematuria—all features commonly associated with bacterial endocarditis.

In cases 1 and 2 presented above, rheumatic myocarditis simulated bacterial endocarditis. In the case (case 14) below, an unusual complication of bacterial endocarditis led to the mistaken diagnosis of rheumatic myocarditis.

CASE 14.—An 18-year-old boy had developed fever, malaise, and fatigue five months prior to admission. He was admitted to another hospital where two blood cultures were positive for nonhemolytic streptococci and 47 million units of penicillin were administered over a period of 78 days. After discharge, the patient did well until two weeks prior to readmission, when he developed fever and pain in the joints. He was readmitted to the same hospital and given a short course of penicillin and tetracycline and then transferred to the Johns Hopkins Hospital.

He was found to have mitral stenosis and regurgitation. He was afebrile on admission, the peripheral leukocyte count was 9,800 per cubic millimeter, and the erythrocyte sedimentation rate was 21 mm. per hour. A rare erythrocyte was seen in the urine, but there was no albuminuria. Eleven blood cultures were sterile. On the seventh hospital day the patient awoke with severe precordial pain, which persisted for three hours and was accompanied by a fall in blood pressure. On the following day the temperature rose to 102 F (38.89 C), the peripheral leukocyte count rose from 7,800 to 27,000 per cubic millimeter, and a pericardial friction rub appeared. Electrocardiograms showed no significant change from that on the admission record. It was felt that this sequence of events was best explained by either a coronary embolus or acute rheumatic myocarditis and pericarditis. Treatment with hydroxy phenyl cinchoninic acid (an aspirin-like agent then under investigation) was instituted, resulting in the prompt fall of the temperature and leukocyte count to normal. The patient was discharged, essentially asymptomatic to convalesce at home. However, heart failure developed after discharge, and he returned after one month.

On readmission he was in severe heart failure. This was interpreted as a manifestation of progressive rheumatic myocarditis. He was afebrile on admission, but the temperature reached 101.4 F. (38.6 C) on the fifth hospital day and rose to approximately this level on each of the next three days. The peripheral leukocyte count was 12,000 per cubic millimeter, and the erythrocyte sedimentation rate was 7 mm. per hour. In one of the three urine specimens examined one red blood cell was seen, and in others a trace of albumin was noted. Three blood cultures were sterile. The patient died after one week in the hospital. At autopsy, vegetations containing microscopically demonstrable bacteria were found on the mitral valve. There were multiple subacute focal infarcts of the right and left ventricles and subacute rheumatoid endocarditis.

The combination of fever, leukocytosis, and pericardial friction rub in a patient with rheumatic heart disease most often indicates rheumatic pancarditis. In this case, however, while lesions of subacute rheumatic endocarditis were present at autopsy, the primary myocardial disease was infarction secondary to coronary embolism.

Miscellaneous Causes of Fever

In most patients with fever and valvular heart disease, rheumatic fever, bacterial endocarditis, drug fever, or embolism will be found to explain the fever. There are, however, several more unusual febrile disorders that deserve consideration in relation to these patients.

Congestive failure is included merely to state that per se it probably never produces sufficient fever to be important in the type of patient being discussed.[14] Oral temperatures of 99-100 F (37.22-37.78 C) may be attributed to congestive failure, but for fever of greater magnitude other explanation must be sought.

Systemic Lupus Erythematosus.—A 44-year-old man (case 22) was seen at autopsy to have had systemic lupus erythematosus manifested by mitral stenosis, fever, clubbed fingers, hematuria, splenomegaly, and petechial rash. The clinical diagnosis had been bacterial endocarditis, and, although blood cultures were negative, he received treatment for this infection. A circulating anticoagulant was present in this patient and contributed to petechial and other hemorrhagic manifestations. It is important to remember that lupus can produce valvular heart disease and that the manifestations of acute systemic lupus may simulate bacterial endocarditis and rheumatic fever.

Hemoglobin Pneumonia.—Hemoptysis is a familiar event in mitral stenosis. Rupture of bronchial varices is usually responsible; however, repeated massive hemoptyses associated with elevations of temperature may result from extensive rheumatic pneumonia and pulmonary vasculitis. Occasionally the aspiration of blood into the lung after a bronchial hemorrhage produces a clinical picture which may include fever as a leading feature. Shaking chills are not infrequent at the onset. Leukocytosis, elevation of the sedimentation rate, and mild bilirubinemia may be observed. Pronounced apprehension is rather characteristic and often develops without apparent reason before the other signs.[15] These attacks are usually nocturnal and often follow unusual exertion during the day.

Hemoglobin pneumonia is a satisfactory term for the generalized illness these patients may have. Patients often have physical and x-ray signs as a result of aspiration of blood into the lung, but these are not always present. Infiltrations concentrated at the base of the right upper lobe overlying the fissure are common, suggesting that the laws of "bronchial embolism" as defined by Brock apply here. Sometimes the pulmonary shadows fan out from each hilum in a "butterfly" pattern; this may be the result of a concomitant pulmonary edema.

The mechanism of bilirubinemia is not clear, but it is probably similar to that responsible for icterus with pulmonary infarction. The pronounced systemic reactions—chills, fever, leukocytosis—may well be a response to altered blood in the airways. In many of these cases very little blood is necessary to evoke the reaction, thus suggesting that hypersensitivity plays a role. Pulmonary infarction obviously can produce much the same clinical picture and, of course, is frequent in patients with mitral stenosis. Usually, however, these two disorders can be distinguished from each other. Hemoglobin pneumonia represents a discreet entity worthy of consideration.

A striking case of hemoglobin pneumonia was that of the patient in case 21, a 39-year-old man with mitral stenosis who had been having intermittent attacks of shortness of breath and fever at night for two years prior to hospital admission. He had been studied at three different medical centers, and, because of fever, the diagnosis of endocarditis had been made despite the fact that all blood cultures were negative. He had received 381 million units of penicillin, but the attacks continued to occur while he was receiving antibiotic therapy. A typical nocturnal episode was characterized by apprehension, tachycardia, fever to 103 F (39.44 C), and leukocytosis of 23,500 cells per cubic millimeter. This was most likely to follow a day of unusual exertion. All the signs and symptoms subsided within 12 hours. The patient had a mitral valvulotomy for relief of pulmonary hypertension and when last heard from, one year after operation, reported amelioration of these symptoms.

Fever from Ball-Valve Tumors.—It is not generally appreciated that intracardiac tumors and thrombi may cause the presenting symptom of fever. One patient (case 24), when she was admitted to the hospital, had signs of rheumatic mitral stenosis and a low-grade fever. The major diagnostic possibilities were rheumatic fever and bacterial endocarditis, and both aspirin and penicillin were administered without effect. At autopsy, a pedunculated ball-valve thrombus was found in the left atrium and there was evidence of both recent and old pulmonary embolism. Fever and signs of peripheral embolism were prominent features in two other patients (cases 23 and 25) who proved to have myxoma of the left atrium with multiple tumor emboli. It seems probable that the fever in these patients arises in part from the process of embolization. The combination of fever, heart murmur, and peripheral embolism frequently leads to the mistaken diagnosis of bacterial endocarditis. At least one similar case of fever with auricular tumor has been described.[16]

Comment

Patients with valvular heart disease and fever present difficult problems in differential diagnosis and management. Bacterial endocarditis should properly be given first consideration when fever and a heart murmur coexist. Without deemphasizing the importance of bacterial endocarditis, one should also direct attention to other conditions which closely simulate it. Petechial lesions, splinter hemorrhages, clubbing of the fingers, and splenomegaly can appear during the course of active rheumatic fever. These lesions are not specific for bacterial endocarditis. Rheumatic myocarditis may be fatal if untreated. In cases in which the differentiation between rheumatic activity and bacterial endocarditis cannot be made with certainty and in which the patient is gravely ill, therapy probably should be directed at both diseases.

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HEMIPELVECTOMY FOR MALIGNANT DISEASE

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The results of amputating an entire lower extremity with the corresponding half of the pelvis for malignant disease in 50 patients seen before the end of December, 1954, are reviewed for the purpose of assessing the therapeutic value of the operation and identifying the factors that affect immediate surgical mortality. No hospital deaths occurred, but in 1955 a hospital death followed operation. It resulted from pulmonary embolism on the seventh postoperative day. This extremely low mortality is ascribed to the relatively short duration of the operative procedure (which averaged 2¼ hours), to the general supportive care given to the patient, and to the replacement of lost blood. A tracheal tube was used by the anesthesiologist in every case. The surgeon must avoid seeding the wound with tumor cells, and transabdominal biopsies of tumors of the os coxae during exploratory laparotomy or through the incision made at the time of hemipelvectomy are strongly condemned. The life expectancy of the patient depended on the type of diseases that necessitated operation, and the best postoperative survival rate was in the group of patients with chondrosarcoma.

Though the first successful transiliac amputation or hemipelvectomy was done by Girard[1] in 1895, it has been in only comparatively recent years that the making of a diagnosis of a malignant neoplasm of the bones or soft tissue of the pelvis and upper part of the thigh did not almost invariably amount to the signing of the patient's death warrant. The first resection was attempted in 1891 by Billroth.[2] His patient died in shock, as did several others on whom resection was attempted before Girard performed that first successful hemipelvectomy in 1895. As late as 1935, Gordon-Taylor and Wiles[3] were able to find in the literature only 79 reported instances of treatment by hemipelvectomy, with 46 operative deaths. The largest single group of cases to date is that reported by Gordon-Taylor and Munro[4] in 1952. They presented information on a total of 64 cases, with 14 deaths, or an operative mortality of 22%. It should be pointed out, however, that operations were performed in 11 of their cases prior to 1940 under conditions somewhat less favorable from the standpoint of supportive care than those enjoyed today. Four of these 11 patients died (36%), whereas 10 of 53 patients operated on after 1940 died, an operative mortality of only 19%.

The Series and Operative Mortality

The first hemipelvectomy at the Mayo Clinic was performed in 1943; in 1946, Beck, with one of us (W. H. B.),[5] reported 12 cases in which the operation was done at this clinic with no operative deaths. Through December, 1954, this series has been extended to 50 cases in which hemipelvectomy has been performed for malignant neoplasms of the pelvis and upper part of the thigh, still without an operative death. Hemipelvectomy was performed also during this time in two cases for intractable, advanced osteomyelitis of the innominate bone with multiple draining sinuses. Both of these patients recovered and are completely well. These two cases are not included in the 50 cases which form the basis of this report. Thirteen additional operations have been done but are not included in the series because of the brevity of follow-up. One of the patients operated on in 1955 died of pulmonary embolism on the seventh postoperative day. He had been ambulatory for several days prior to his death. This has been the only hospital death in the total of 65 cases in which hemipelvectomy has been done prior to Jan. 1, 1956, at the Mayo Clinic.

Explanation for this extremely low mortality lies in several factors. Foremost of these is the excellent supportive therapy tendered by the members of the section of anesthesiology. Careful attention must be given to replacement of the blood lost, and even mild shock cannot be tolerated, since in a procedure of the magnitude of hemipelvectomy it may rapidly become irreversible. A total of 120,500 cc. (about 30 gal.) of blood was given to the 50 patients either during or immediately after operation, a rough average of 2,410 cc. (5 pt.) each. The most blood given to any one patient was 7,000 cc. and the least 1,000 cc. Levarterenol or ephedrine was given if necessary. A tracheal tube was used for all these patients so that respiration could be under the direct control of the anesthesiologist at all times.

Another important factor in maintaining low operative mortality is the duration of the operative procedure itself. The average operating time in all 50 cases was 2¼ hours, with the longest being 3½ and the shortest 1⅓ hours. In 13 of these cases the operat-

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ing time was less than two hours, and in only 7 was it more than three hours. It is obvious that the alarm reaction and stress mechanism of the patient are much more severely taxed by extremely long procedures, even with excellent supportive care; it must be remembered too that a difference of even one or two hours makes considerable difference (1) in the total amount of anesthetic agent given, (2) usually in the total quantity of blood lost, and (3) most certainly in the likelihood of postoperative complications.

Operative Technique

The operative technique described by King and Steelquist[6] was followed in most cases, although alterations were made as the occasion arose. In cases of tumors arising in the buttock, it was oftentimes necessary to form anterior instead of the standard posterior flaps in order to avoid the tumor. In a few of the cases in which tumors of the innominate bone protruded into the abdomen, a general surgeon assisted in the abdominal phase of the operation.

In all 50 cases, primary closure with rubber drains of the Penrose type was employed, with removal of the drains in 48 hours. Several of the stumps were slow in healing and drained for a week or two after operation, but in only three instances was healing a problem. In one case a large hematoma developed; it was evacuated repeatedly but re-formed. Finally, the margins of the flap were opened inferiorly, the defect was packed open, and the area was allowed to fill in by granulation. In the two other cases the margins of the flaps sloughed and skin grafting was necessary before final healing could be accomplished.

Injury to the genitourinary organs occurred in only one case, in which the urethra was lacerated when the pubic bone was removed. The defect in the urethra was immediately repaired by a urologic surgeon who was called in, and, except for the inconvenience of an indwelling catheter while healing took place, no difficulty was experienced and no sequelae were observed.

Perhaps the most important point in technique is emphasized by the fact that in 14 of the 25 patients who have died since operation, and in 2 of the patients who are now known to have metastases, seeding of the wound with tumor cells was known to have occurred at the time of operation. This resulted from (1) taking of a biopsy specimen through the future operative site before hemipelvectomy or through the operative site at time of hemipelvectomy; (2) the necessary removal of huge tumors in pieces which made it impossible to avoid some seeding with tumor cells, (3) adherence of the tumor to vessels, peritoneum, intra-abdominal organs, or tissue, such as parts of the sacrum that could not be removed, (4) incomplete removal of a tumor as a palliative procedure in cases in which it was obvious at the time of operation that complete removal was impossible, and (5) accidental opening of the tumor in the course of the operation.

No patient who now is living and without metastases is known to have had seeding of the wound with tumor cells; all patients in whom seeding is known to have occurred have either died or have definite evidence of recurrence. In one case, transabdominal biopsy of a chondrosarcoma of the ilium was carried out elsewhere, and, though the surgeon suspected that seeding had occurred at the time of the previous operation, this was not known for certain. This patient, contrary to the usual story, is living 12 months after operation and is without known metastases.

The removal of tissue from tumors of the innominate bone for microscopic examination and diagnosis at the time of exploratory laparotomy is to be deplored, as such practice often precludes any chance of complete eradication by hemipelvectomy later. The seriousness of the situation can usually be determined before operation and the patient's permission for radical operation obtained. Then, at operation, an approach suitable for biopsy can be employed. If the frozen section of the tissue removed reveals a malignancy, definitive treatment can be instituted immediately and the tissue near the incision used for the biopsy can be included in the portion removed. In this way, seeding the remaining tissues with tumor cells is avoided.

Duration of Symptoms and Survival

From a clinical standpoint, the 50 patients, for the most part, presented the symptoms and signs which would be expected from neoplasms of the pelvis for which hemipelvectomy was necessary. The usual symptoms were pain, mass, loss of motion in the hips, signs of nerve pressure and vascular pressure, and in some cases dysfunction of the bowel or bladder.

Of much more significance than the type of symptom presented, however, was the duration of the symptoms. Although some of these neoplasms are relatively slow growing and hence might show a good incidence of cure—even with symptoms of relatively long duration—for the most part, the shorter the time between onset of symptoms and removal of the tumor by hemipelvectomy, the better the chances of survival for the patient. Twelve of the 18 patients who had had symptoms less than six months at the time of operation are still living (two with metastases), and 4 of the 6 who had had symptoms for six months to one year are still living (one with metastases), while only 8 of the 25 patients who had had symptoms for more than one year have survived the present follow-up periods, and one of these has evidence of metastases.

A total of 25 of the original 50 patients who underwent hemipelvectomy are still living, though 4 of this group have generalized metastases. Discounting these four, the follow-up interval for these living patients ranges from the shortest period of five months to the longest of 11 years and eight months. In seven cases the follow-up period was five years or more; in three it was between four and five years; in one, between three and four years, in two, between two and three years; in four, between one and two years; and in four, less than one year. The four patients with generalized metastases were living 22, 13, 6, and 2 months after operation when follow-up information was obtained.

Of the 25 patients who are dead, 13 did not survive the first year following hemipelvectomy, four lived one to two years, one lived about three years, five lived three to four years, and two lived six years and five years and five months, respectively, before dying of the neoplasm.

Selection of Patients for Operation

With adequate follow-up data now available on 50 patients, some conclusions may be drawn which may help to evaluate the efficacy of such a radical procedure as hemipelvectomy. Certainly the decision to recommend a hemipelvectomy must be the result of careful weighing of the many aspects by the surgeon who suggests such a course of action and by the patient before deciding to have it done. Aside from the immediate danger of loss of life during the procedure itself, a patient faces, on occasions, a rather stormy postoperative period and sometimes a prolonged convalescence, especially when any difficulty in wound healing is experienced.

TABLE 1.—*Survival After Hemipelvectomy, by Type of Lesion*

Lesions	Patients		
	Total	Living	Dead
Bone tumors			
Chondrosarcoma	22	13*	9
Osteogenic sarcoma	9	3	6
Fibroblastic	1	1	...
Osteoblastic	2	1	1
Chondroblastic	6	1	5
Reticulum-cell sarcoma	1	...	1
Total bone tumors	32	16	16
Soft-tissue tumors			
Fibrosarcoma	6	1	5
Liposarcoma	5	4†	1
Miscellaneous	7	4	3
Rhabdomyosarcoma	1	0	1
Myofibrosarcoma	2	2	...
Neurofibrosarcoma	2	1	1
Hemangiopericytoma	1	1*	...
Malignant mesenchymoma	1	...	1
Total soft-tissue tumors	18	9	9
Grand total	50	25	25

* 1 has metastases.
† 2 have metastases.

The disability associated with the loss of an entire lower extremity is not slight. The patient who has been engaged in active physical work is faced with the inability to return to this type of work, no matter how agile he may become on crutches or with use of a prosthetic appliance. Adjustments in his daily life must be made because the type of prosthesis available leaves much to be desired, particularly for older and heavier individuals. Driving a car presents problems in some instances. Bowel and bladder dysfunction, while not a prominent problem in our series, are certainly sequelae to be considered and can b disabling when they do occur. The third factor to b considered in elective hemipelvectomy is the tremen dous psychic trauma associated with a mutilatin procedure of this type. Many patients who can adjus to the idea of amputation of a leg are someho unable to accept emotionally the loss of half of thei pelvis as well, even though the resulting disabilit is almost the same.

It becomes obvious from the foregoing that carefu consideration of each patient is imperative in selectio of cases for hemipelvectomy. Not only must the surgeon assure himself to the best of his ability tha distant metastases do not exist, but also he must weig the operative mortality, stormy postoperative cours prolonged convalescence, resultant disability wit the chance of sequelae, and psychic trauma agains the possibility of obtaining a cure by this procedur Since most patients will gladly accept the disadvantages for a reasonably good chance of permanen eradication of the tumor, consideration of the likelihood of cure in the different types of tumors i pertinent.

Survival as Related to the Type of Neoplasm

From a pathological standpoint, our patients wer divided into two large groups, namely, those wit primary tumors of bone and those with malignan neoplasms of soft-tissue origin. Tumors of 32 patient arose from bone. Of these 32 patients, 16 are living although one has generalized metastases. These neoplasms of bone were of three general histologica types: chondrosarcoma, osteogenic sarcoma, an reticulum-cell sarcoma (table 1).

The largest histological group of bone tumors wa that of chondrosarcomas. Of the 22 patients in thi group, 13 are living, including the one with generalized metastases previously mentioned. Follow-u periods in this group included the longest of 11 year and eight months without signs of recurrence, an the shortest of five months. Histologically, the chondrosarcomas were graded according to the classification of Broders, and the malignancy of all except one was found to be either grade 1 or 2 (table 2). Of th 10 patients with grade 1 malignancy, 5 are still living of the 11 with grade 2 malignancy, 7 are living. Th patient with the grade 3 chondrosarcoma is livin three years and eight months after operation withou signs of recurrence; and one of the patients wit grade 2 chondrosarcoma has generalized metastase only six months after operation.

The location of the chondrosarcoma seemed particularly significant. The primary site of the chondrosarcoma was the femur in 7 of the 22 patients, an only 1 of these 7 has died. This patient, who wa treated originally by disarticulation of the hip, ha a recurrence in the stump involving the ilium. Hemipelvectomy was performed because of the recurrenc one year later. Eight of the 15 patients with chondrosarcomas of the innominate bone have died.

Of the nine patients who had osteogenic sarcoma, only three have survived (table 1). Histologically, all three types of osteogenic sarcoma were represented in the group: one tumor was of the fibroblastic type (grade 2), two were of the osteoblastic type (grade 3 and grade 4), and six were chondroblastic osteogenic sarcomas, two of which were of grade 2 and four of grade 3 malignancy (table 2). Two of the three living patients who had osteogenic sarcoma had neoplasms of grade 2 malignancy, while the third had a typical grade 4 osteoblastic osteogenic sarcoma involving the entire upper part of the femur complicated by a pathological fracture. This last patient had one of the longest follow-ups in the series (nine years and two months) and apparently can be considered well.

One primary tumor of bone was a reticulum-cell sarcoma which involved the upper part of the femur, the innominate bone, sciatic nerve, femoral vessels, and femoral nerve. There was massive brawny edema of the entire extremity, with exquisite intolerable pain resulting from involvement of the nerve. Hemipelvectomy was done as a palliative procedure to relieve the excruciating pain and remove the greatly enlarged useless extremity. Intensive x-ray therapy was given to this ordinarily radiosensitive tumor, but the patient lived only seven months. Death was due to generalized involvement.

The second large group of neoplasms, the soft-tissue tumors, consisted of two main and several miscellaneous types. There were six fibrosarcomas, five liposarcomas, and seven in the miscellaneous group. Of the 18 patients in this group, 9 were living at the time of follow-up, but 3 of these had evidence of generalized metastases (table 1) The longest follow-up period in this group was eight years and four months and was for one of the patients with myofibrosarcoma. The shortest follow-up period was seven months and two others were less than one year.

Only one of the six patients with fibrosarcoma is living. This patient, who had a grade 4 neoplasm, is living 18 months after operation and does not have any signs of recurrence. Of the five patients with liposarcoma, the one with the lesion of grade 1 and all three of the patients with lesions of grade 3 are living, although two of the latter have evidence of metastases. One of these patients with a grade 3 liposarcoma had a solitary metastatic lesion in the lung 16 months after hemipelvectomy. Pneumonectomy was performed on the right. The patient is living nine months after this second operation, and, while definite proof of other metastatic lesions cannot be demonstrated, it is suspected that such lesions exist.

The miscellaneous group of soft-tissue tumors is listed in table 1. Of the seven patients in this group, the two with myofibrosarcoma and one of the two with neurofibrosarcoma are living and are without evidence of metastases. The patient with a hemangiopericytoma has evidence of extensive pulmonary metastases 13 months after hemipelvectomy.

From the foregoing, several general impressions may be gained. By and large, the greatest percentage of survivals for the follow-up period was in the group of patients having chondrosarcomas. This might be expected, since chondrosarcomas are usually of a lower grade of malignancy, and more clearly differentiated grossly, which allows greater success in attempts at complete removal. Furthermore, many of the soft-tissue tumors occurred relatively high in the buttock or groin, making removal of all malignant cells less likely, particularly when these tumors are ordinarily poorly demarcated. The importance of location of the tumor, even among the chondrosarcomas, has already been pointed out. It is impossible to attach significance to survival associated with lesions of different grades of malignancy within groups (other than between groups having characteristically different grades as a group), since complete circumstances are not known in some cases and the groups are not large enough to present statistically valuable data. There are instances of relatively long follow-ups of patients with neoplasms of grade 4, whereas patients with neoplasms of grades 1 and 2 of the same histological type lived only a few months.

TABLE 2.—*Survival After Hemipelvectomy, by Grade of Malignancy of the Bone Tumors and Three Soft-Tissue Tumors*

		Patients	
Neoplasm	Grade	Living	Dead
Chondrosarcoma	1	5	5
(22 cases)	2	7*	4
	3	1	
Total		13	9
Osteogenic sarcoma (9 cases)			
Fibroblastic	2	1	
Osteoblastic	3		1
	4	1	
Chondroblastic	2	1	1
	3		4
Total		3	6
Fibrosarcoma	2		1
(6 cases)	3		4
	4	1	
Total		1	5
Liposarcoma	1	1	
(5 cases)	3	3†	
	4		1
Total		4	1
Neurofibrosarcoma	2	1	
(2 cases)	4		1
Total		1	1

* 1 patient has metastases

† 2 patients have metastases

Postoperative Discomfort, Use of Prosthesis, Vesical and Bowel Dysfunction

From questioning the 25 survivors, it was learned that a relatively high percentage have experienced varying degrees of phantom pain. Although this phenomenon is an almost constant finding during the first few weeks after operation, the discomfort is usually of only short duration. Five of the patients stated that they had occasional mild pain that seemed to arise from the amputated extremity. These episodes had occurred periodically throughout the follow-up period.

Six others classified their discomfort as moderate and more or less constant. The pain was described as severe by four, being so severe in one as to require chordotomy for relief. In only these four cases has the pain been severe enough to be disabling per se. There were no symptoms of bowel or bladder dysfunction in any of the patients comprising this series with the exception of the case mentioned in which chordotomy was done because of persistent pain.

Only two of the patients stated that they routinely use a prosthesis, though two others mentioned that they had tried various prosthetic appliances and had found none satisfactory. The remainder of the survivors have not tried to use a prosthesis, either on advice of the limb maker or because of their own disinclination. Many of these patients have felt that they fared so well on crutches that they did not believe that any type of prosthetic appliance could offer additional comfort or function.

The local physician of one of the patients reported that the patient became pregnant some months after operation, enjoyed a relatively uneventful pregnancy, and spontaneously delivered a normal, healthy child. It is now three years and eight months since hemipelvectomy was done on this patient for grade 3 chondrosarcoma of the upper part of the femur.

Conclusions

On the basis of 50 cases in which malignant neoplasms of the pelvis and upper part of the thigh were treated by hemipelvectomy at the Mayo Clinic, the following points seem worth stressing:

1. The chances of survival are definitely improved by early recognition and operation soon after discovery of the tumor.
2. Chances for survival seem much greater in the slower-growing neoplasms, but anaplasia per se is not a contraindication, since some of the longest survivals in the series have been among patients with neoplasms of grades 3 and 4.
3. Location is an important factor in determining chances for survival, since tumors that can be removed *in toto* with a wide margin of normal tissue offer the best chance of complete eradication. This is best illustrated by the fact that the percentage of survivors among those who have had chondrosarcomas occurring in the upper part of the femur was much greater than among those who have had chondrosarcomas arising primarily from the innominate bones.
4. The highest percentage of survivals was in the group of patients with chondrosarcoma. This is thought to be due to the fact that as a group chondrosarcomas are usually of lower grade and are slower growing than other neoplasms removed. In addition, when they occur in the upper part of the femur, they often offer a wider margin of normal tissue and hence an excellent chance of cure in this location.
5. Transabdominal biopsy of tumors of the innominate bone at the time of exploratory laparotomy and biopsy of lesions through the same incision as that contemplated for hemipelvectomy are to be strongly condemned, since the chances for complete eradication are materially lessened because the procedures almost invariably allow seeding of the remaining tissue with tumor cells.
6. Operative mortality can be greatly lessened by careful supportive therapy, including meticulous replacement of blood, and by maintenance of a minimal operating time.

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The Return of the Patient.—Every doctor is interested in rehabilitation. That is what he means by the word "cure." By that term he means the relief of symptoms, the restoration of function and the return of the patient to his job, to his family, and to the community as a normal person. In the case of appendicitis, simple fracture or pneumonia, the doctor can achieve this end result with his own bare hands. When a person has lost a leg by amputation, suffered injury to the spinal cord, with paraplegia, or to the brain, with hemiplegia, however, the doctor needs not only his two hands but other hands as well. Unless the doctor's efforts are supplemented by the work of paramedical personnel, such a patient will be left permanently disabled, a burden to the family and community, and unable to assume his rightful place in society. . . . The philosopher Paulsen said that the object of all help is to make help superfluous. This is the ideal that has pointed the way to surgeons. It is an ideal that can be realized only when surgeons assume a fierce belief in their individual responsibility for what happens to their fellow men.—Henry H. Kessler, M.D., Rehabilitation of the Amputee, *Journal of the International College of Surgeons*, September, 1956.

PREDNISONE AND PREDNISOLONE THERAPY IN RHEUMATOID ARTHRITIS

CLINICAL EVALUATION, WITH EMPHASIS ON GASTROINTESTINAL MANIFESTATIONS IN ONE HUNDRED FIFTY-SIX PATIENTS OBSERVED FOR PERIODS OF FOUR TO FOURTEEN MONTHS

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Rheumatoid arthritis was treated in 156 patients by oral administration of either prednisone or prednisolone. The initial dosage ranged from 10 to 40 mg. per day, given in divided doses at approximately six-hour intervals. In most patients, 10 mg. or less per day sufficed for maintenance. Therapy was continued for periods ranging from 4 to 14 months. Observations showed general improvement in the patients by subjective and objective criteria; functional capacity was increased, and 38 of the 59 adult male patients were enabled either to return to work or to continue their work status. Side-effects of these drugs were, in general, not disturbing, but the incidence of gastrointestinal complaints increased from 11 to 21%. Peptic ulcers appeared in some patients in whom the roentgenograms had not shown such lesions before treatment. Among five patients who developed complications of peptic ulcer, three developed hemorrhages and two suffered perforations. Because these complications offset somewhat the undeniable benefits of the prednisone and prednisolone to arthritic patients, there is urgent need for the development of drugs that will be equally effective and less marred by side-effects.

Six years of experience with corticotropin (ACTH) and adrenal cortical steroids in the management of rheumatoid arthritis has reemphasized the importance of a basic therapeutic program, which includes adequate rest, physical therapy, salicylates, relief from various types of physical and emotional stress, analgesia and sedation.[1]

In a clinic to which persons with more advanced rheumatoid arthritis and those who are more seriously ill are referred, conservative management, even diligently applied, may not suffice. Sustained progression of the rheumatoid process, increasing incapacity of the individual, and pressing socioeconomic need for earliest functional rehabilitation may force the clinician to add an adrenal cortical steroid to the basic therapeutic regimen.

In our practice the steroids have not been used as substitutes for the basic program of management, but rather as a supplementary measure. Although our emphasis in this presentation is on the clinical evaluation of the steroid effect, the common denominator of therapy was, in all instances, a relatively uniform program of general measures.

Prednisone and prednisolone, employed in the management of rheumatoid arthritis for nearly two years, have demonstrated the value of their antiphlogistic effect in this disease.[2] By clinical appraisal, the antirheumatic potency of prednisone, per milligram, generally averages four times that of hydrocortisone.[3] With amelioration of the manifestations of the disease, there is often increased functional capacity of the individual. Undesirable physiological effects have, however, been noted with prednisone as with cortisone and hydrocortisone.[4]

We are, therefore, attempting an appraisal of the value of prednisone by evaluating our experience in 156 patients with rheumatoid arthritis in whom prednisone (or prednisolone) was employed in an office and hospital practice from December, 1954, to the time of writing. We hoped that our data might shed some light on the following questions: What is the indication for the use of this steroid? What is the optimal dosage? What positive therapeutic effects may be expected? What undesirable effects may be anticipated? What measures may be taken to prevent or manage the undesirable effects which develop? What conclusions are justified with regard to the place of these steroids in the management of rheumatoid arthritis?

Composition of Clinical Material

Prednisone was administered chiefly to patients with far-advanced, severe, but potentially reversible rheumatoid arthritis. Others were patients with early, milder, but unequivocal rheumatoid arthritis, in whom functional rehabilitation, which was a pressing necessity, could not be achieved by a fair trial of conservative measures alone.

Sixty patients were male; 96 were female. The ages ranged from 9 to 79 years. The majority of the patients (71%), were between 40 and 60 years of age.

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In 46% of the cases, the duration of the arthritis was from 3 to 15 years. Twenty-seven per cent of the patients had had their disease over 15 years.

Six per cent of the patients were in stage 1 of their disease, according to the Steinbrocker classification.[5] Twenty-four per cent were in stage 2, 52% in stage 3, and 18% in stage 4. Prior to the institution of prednisone therapy, 63% of the patients were taking either cortisone or hydrocortisone. Seventeen per cent were receiving salicylates, and 20% were receiving phenylbutazone (Butazolidin) or chrysotherapy, with unsatisfactory response.

DURING PREDNISONE THERAPY

BEFORE PREDNISONE THERAPY

GRADE	I	II	III	IV	TOTAL
I					
II	18	42	2		62
III	2	67	21		90
IV		1	1	2	4
TOTAL	20	110	24	2	

Fig. 1.—Activity of rheumatoid arthritis, graded from 1 to 4, in increasing order of severity. Unstippled area shows number of patients in whom improvement with prednisone was sufficient to justify a lower grading.

Mode of Administration

In the majority of the patients (94% of the group) the initial dosage ranged from 10 to 40 mg. of prednisone or prednisolone per day, given in divided doses at approximately six-hour intervals. In 49% of the group the dosage range was 10 to 20 mg. daily. In five cases, dosages of 60 to 90 mg. daily were administered for periods of less than a week. The dosage was then adjusted according to the particular requirements of the patient. For maintenance therapy, 10 mg. or less of the drug per day was used in the majority of patients. At the time of analysis of our results, the duration of therapy ranged from 4 to 14 months. Eighty-two per cent of the patients have been observed while on prednisone therapy for at least an 8-month period and 66% over a 10-month period.

Results of Therapy

The results of therapy were evaluated from three points of view. The first was grading of the over-all improvement in the total activity of the disease as judged by composite evaluations of improvement in subjective and objective manifestations, general constitutional reaction, and the usual routine laboratory data. The next was the improvement in functional capacity of the individual. The third was the ability of the 59 adult male patients to either return to work or continue their work status.

Figure 1 presents an evaluation of the activity of the disease, relating the patient's status prior to treatment with his status on prednisone therapy. The degree of severity is graded from 1 to 4, in increasing order of severity. Prior to therapy, no patient was considered to have disease of grade 1 severity. During therapy 20 patients were so classified. Eighty-nine patients (57% of the total group) improved at least one grade with prednisone therapy.

Figure 2 shows the functional classification before and during therapy, according to Steinbrocker and others,[5] with severity of impairment classed from 1 to 4. Before treatment with prednisone there were no patients in class 1; during therapy 26 patients moved into this classification. Prior to therapy, eight patients were considered to have class 4 impairment; that is, they were partially or totally dependent upon others for basic activities of daily living. With therapy, only three remained in this classification. Sixty-four patients (41%), represented in the unstippled area in figure 2, improved sufficiently with prednisone to justify a higher functional classification.

DURING PREDNISONE THERAPY

BEFORE PREDNISONE THERAPY

CLASS	I	II	III	IV	TOTAL
I					
II	21	57			78
III	5	33	32		70
IV			5	3	8
TOTAL	26	90	37	3	156

Fig. 2.—Effect of prednisone therapy on functional capacity (classification according to Steinbrocker and co-workers [5]). Unstippled area shows number of patients in whom improvemen with prednisone was sufficient to justify a lower classification

An analysis of the work status of the 59 adult male patients included in this study is represented in figure 3, which indicates that 9 of the 30 patients who were not working at the start of therapy returned to work some time during the course of treatment with prednisone The 29 patients who were working maintained this status, although several of these experienced short periods of unemployment resulting from temporary flares of rheumatoid activity.

Undesirable Effects of Therapy

Nearly all of our patients receiving prednisone exhibited some manifestations of adrenal cortical hyperfunction (Cushing's syndrome), such as moon facies, buffalo obesity, increased appetite, insomnia, striae, and ecchymoses. The severity of these signs was generally proportional to dosage of prednisone and/or duration of therapy. In general, these manifestations were tolerated by the patient as a nuisance of relative unimportance. Edema and elevation of blood pressure were notably rare. This was in contrast to our previous experience with equivalent doses of hydrocortisone, when water retention was evident in the majority of instances.

The most disturbing side-effects noted were those referable to the digestive tract. Dyspepsia, referring to indigestion, heartburn, epigastric distress, or sour eructations (symptoms simulating those of peptic ulcer), occurred in 25% of our patients before prednisone therapy. After the institution of therapy, 48% exhibited dyspepsia of some degree. Considering only those patients with moderate to severe dyspepsia, it was again demonstrated that under therapy a twofold increase developed in the number of patients with this degree of gastrointestinal difficulty (11% before; 21% during therapy).

X-rays of the upper gastrointestinal tract were obtained in 43 patients who exhibited severe or persistent dyspepsia during treatment. Findings in 32 of these were normal. In three cases a diagnosis of hypertrophic gastritis was made, but no evidence of ulceration was noted. In one patient a scarred duodenal cap, without an ulcer niche, was demonstrated.

In four patients, two of whom were male, duodenal ulcers were seen. In one of these an x-ray of the gastrointestinal tract made prior to therapy had been normal. All four developed disturbing dyspepsia after administration of the steroid, in a dosage ranging from 10 to 20 mg. per day, for a period of 4 to 10 months.

Three female patients were noted to have a gastric ulcer on gastrointestinal x-rays made three to four months after prednisone therapy was begun and while they were receiving a dosage ranging from 6 to 10 mg. per day. In one of the three an x-ray of the gastrointestinal tract made prior to therapy had been normal. All three had mild dyspepsia prior to therapy, and in two of the three the distress increased markedly with the addition of prednisone.

Five patients developed complications of peptic ulcer. Three of these, who were taking from 10 to 25 mg. of prednisone per day, developed hemorrhage; in the other two the ulcers perforated. One patient with a history of gastrointestinal bleeding four years previously while on phenylbutazone therapy, who failed to adhere to a prescribed ulcer regimen, developed gastric hemorrhage during the third month of prednisone therapy. The second patient, a woman with severe rheumatoid arthritis who was obese, hypertensive, and plethoric, and who had been on corticotropin or hydrocortisone medication for years, died from gastrointestinal hemorrhage during the seventh month of therapy. The third patient, who developed a bleeding ulcer during the second month of treatment, required a subtotal gastric resection. Two patients, receiving 10 and 15 mg. of prednisone per day, respectively, developed perforations of duodenal ulcers 3 months and 12 months after the institution of therapy. These were successfully repaired surgically. In one of these patients x-rays of the gastrointestinal tract made prior to therapy had been normal.

	WORKED DURING PREDNISONE THERAPY		
WORKED BEFORE PREDNISONE	NO	YES	TOTAL
NO	21	9	30
YES	0	29	29
TOTAL	21	38	59

Fig. 3.—Gainful employment status of 59 male patients.

Despite evidences of peptic ulceration, in 11 of the 12 patients described above it became necessary to resume prednisone therapy. This was combined with a strict ulcer regimen and was well tolerated. In addition, there were two patients with a diagnosis of peptic ulcer made many years before in whom prednisone therapy was instituted, combined with an ulcer program. Two other patients, one of whom had been receiving cortisone, exhibited gastric ulcer on x-rays of the upper gastrointestinal tract made prior to the institution of prednisone therapy. Gastric resection was performed in one of these cases before institution of therapy.

Effect on Gastric Secretion

Impressed with the relatively high incidence of dyspepsia, we undertook a study in which gastric analyses (with use of Ewald's test meal), including pH and free and total acid measurements, were performed on 6 rheumatoid arthritics before and after prednisone therapy and on 10 rheumatoid patients after institution of therapy with prednisone.

In five of the six cases studied, there was an increase in free and total acidity, with a drop in pH values. Although statistically significant, this increase was not to values as high as those usually observed in patients with ulcer. Moreover, even though prednisone increased gastric acidity in most cases, there was no consistent correlation between this increased acidity and the presence of peptic ulcer. The latter was associated in some instances with a normal range of free hydrochloric acid or with relatively slight increases. The experience of Kammerer and Rivelis[6] was quite similar to our own.

Effect on Glucose Tolerance

In three patients previously aglycosuric, marked glycosuria and hyperglycemia developed. Two of these patients require insulin at present. In six other patients in whom either decreased glucose tolerance or overt glycosuria and hyperglycemia were present prior to therapy, the administration of prednisone was followed by the appearance of glycosuria or an increase in the insulin requirement.

Two patients developed fractures while on prednisone therapy. In one patient a fractured femur appeared after severe trauma. In the other, a severe degree of osteoporosis, present for many years, possibly contributed to the fracture which developed after mild trauma. The latter patient had been receiving steroids for years prior to the institution of prednisone therapy and had had a prolonged period of immobilization in bed prior to ambulation with crutches.

Deaths

In the entire group of 156 patients, there were 3 deaths. One patient died of bile duct cancer, another of generalized vasculitis with involvement of the mesenteric vessels and perforation of the colon, and the third from a bleeding peptic ulcer.

Comment

Our present evaluation of the effect of prednisone in rheumatoid arthritis confirms our earlier impressions regarding its effectiveness in lessening the activity of this disease, thereby improving the functional capacity of the individual. If it is remembered that the majority of our patients had relatively far advanced, severe forms of the disease, and that most of them had been receiving hydrocortisone ineffectually prior to substitution of prednisone, then the restoration and maintenance of some degree of functional integrity of the individual for periods of 4 to 14 months represents an impressive accomplishment. Fifty-seven per cent of the patients had a measurable decrease in total severity of the disease. Forty-one per cent had measurable improvement in functional capacity, and 9 out of 30 male patients who were not working returned to work through the effect of prednisone.

With wider experience and with increasing effort to ward off undesirable effects of the steroid, we found it expedient to reduce the dosage of prednisone in the majority of patients to a maintenance level of 10 mg. per day or less. To be sure, the fullest degree of functional restoration was not achieved, but, with less exposure to hypercortisonism, the long-continued administration of the steroid demanded by the chronicity of this disease may be facilitated.

Minor side-effects noted in the majority of patients were not disturbing. Most patients with salt and water retention resulting from hydrocortisone lost the edema or the degree of fluid retention decreased markedly when prednisone was substituted, with actual improvement in functional capacity of the individual. The rare instances of fluid retention during prednisone therapy could be readily controlled by restriction of salt in the diet.[2b]

Gastrointestinal complications constituted the most disturbing undesirable effects of therapy. Since pretreatment gastrointestinal x-rays were not obtained routinely, we are unable to draw conclusions concerning the development of peptic ulcer with prednisone. Peptic ulcer was demonstrated, however, during treatment with prednisone in 7 of 43 patients in whom gastrointestinal x-rays were obtained because of the severity of symptoms. Gastric hemorrhage or perforation of an ulcer developed in five additional cases.

It is of practical interest that in all of our patients who developed dyspepsia while on prednisone therapy, and in the four patients with a history of previous ulcer, administration of an aluminum hydroxide gel preparation and a diet incorporated in an ulcer regimen, generally combined with some reduction in the dosage of prednisone, appeared to relieve digestive symptoms.

A similar program of dietary and antacid medication permitted the continuation of prednisone medication, which was indispensable in all four patients with duodenal ulcer, in the three female patients with gastric ulcer, in two of the three patients who had bleeding peptic ulcers and in the two patients who had perforation of their ulcers. Without the steroid three of these patients were bedridden and unable to care for any of their most basic needs. With reinstitution of prednisone therapy in a dosage of 15, 10, and 5 mg. daily, respectively, one patient became ambulatory, the other could get around with the aid of crutches, and the third maintains a wheelchair existence. In all such cases, the absolute necessity for reinstituting prednisone therapy seemed to justify the potential risk involved. On this regimen the patients were not only free of dyspepsia but the gastrointestinal x-rays became normal and have remained so. This suggests that, when it is absolutely essential, prednisone therapy may be continued with some reduction in dosage, but definitely with a strict ulcer regimen.

The appearance of glycosuria or an increase in severity of existing diabetes was noted in nine of our patients. In general, adherence to a diabetic regimen, or reduction in the dosage of prednisone, managed the situation.

Conclusions

As evaluated in a series of 156 patients with rheumatoid arthritis, prednisone appeared to be an effective agent in suppressing rheumatoid activity and in improving the functional capacity of the individual. In general, side-effects of therapy were not disturbing. However, disturbing gastrointestinal symptoms and signs did appear. Definite peptic ulcer was noted in 7 of 43 patients with dyspepsia in whom gastrointestinal x-rays were made because of digestive distress. In five additional patients either gastric hemorrhage or perforation of an ulcer developed.

When absolutely essential for maintenance of the patient's functional capacity or his self-sufficiency, it may be possible to continue administration of prednisone even in the face of peptic ulcer, if a strict ulcer regimen, including diet, antacids, and antispasmodics, is administered concomitantly. In the final analysis, evaluation of any given therapeutic program in rheumatoid arthritis requires individualization of therapy and follow-up of patients over a period of many years.

The enforced resort to steroids for the management of rheumatoid arthritis, despite the occurrence of side-effects, including peptic ulcer with its inherently serious complications, emphasizes the urgency for the development of more effective agents for patients in whom nothing else provides adequate improvement of disability.

500 Penn Ave. (22) (Dr. Stolzer).

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Priestley in the United States.—The home of Joseph Priestley has been acquired and is being restored to its original appearance by the Borough of Northumberland, Pennsylvania, U. S. A. This house, started in 1795 and completed in 1797, and owned for many years by the Priestley family, was purchased in 1920 by the Pennsylvania State University and presented this year (1956) to Northumberland. The home is of Georgian architecture, is in fine condition, and occupies an acre of landscaped ground near the Susquehanna River. Under the direction of the Priestley Memorial Association, the widow's walk, kitchen and laboratory are being restored to their original apearance and the rooms refurnished with American furniture of about 1800. The Association desires to gather all obtainable information on Priestley and on his American home. It would like to receive reprints of articles bearing on his work, and it welcomes correspondence with anyone interested in this matter; visitors are welcome. Correspondents should write to Mr. Lewis K. Rich, 464 Front Street, Northumberland, Pennsylvania. The Division of History of Chemistry of the American Chemical Society is cooperating with the Priestley Memorial Association in the restoration of Priestley's laboratory. To this end a committee including Sidney Edelstein, Claude K. Deischer and Wyndham Miles (chairman) has been constituted. The committee wishes to locate apparatus of Priestley's American period, with the view of acquiring them or having replicas made. It welcomes correspondence with anyone knowing the whereabouts of apparatus, and with scholars interested in this project; correspondence should be addressed to Dr. Wyndham Miles, Edgewood, Maryland.—News and Views, *Nature*, Nov. 24, 1956.

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ZOXAZOLAMINE AND/OR CHLORPROMAZINE FOR MUSCLE SPASM

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Eight patients who had skeletal muscle spasticities due to spinal cord injuries received various combinations of four drugs, (1) zoxazolamine, (2) a placebo resembling zoxazolamine, (3) chlorpromazine, and (4) a placebo resembling chlorpromazine. Each patient's status with respect to muscular spasticities was evaluated objectively by observers who, like the patient himself, did not know which combination of drugs he was receiving at a given time. The dosages used were 500 to 1,000 mg. of zoxazolamine and 25 to 50 mg. of chlorpromazine, all given four times a day, and were sufficient to cause some side-effects (drowsiness, nausea) in six of the eight patients. These dosages did not, however, have any consistent effect on muscular spasticity in this series of patients.

It is well recognized that involuntary muscle spasm is one of the most disturbing sequelae in cases of injuries of the spinal cord which have produced transverse myelopathy. At the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center, spasticity has been found to be the major deterrent to the physical rehabilitation of a large number of quadriplegics and paraplegics.

Cooper [1] has pointed out the great usefulness of subarachnoid alcohol block for the relief of spasticity in paraplegia. Like other destructive neurosurgical procedures for eliminating spasm, this is irreversible. For this reason, a drug which would relieve spasticity without jeopardizing return of motor function would be of inestimable value.

Recently, zoxazolamine (Flexin) has been shown to produce a flaccid paralysis of the limb musculature of animals.[2] Chlorpromazine (Thorazine) hydrochloride is said to act as a skeletal muscle relaxant.[3] Amols [4] states that zoxazolamine is a mild muscle relaxant for spastic conditions and that this effect is markedly increased by combination with chlorpromazine. He found that this combination of zoxazolamine with small doses of chlorpromazine afforded the best therapy as a centrally active muscle relaxant. Smith and associates [5] found zoxazolamine to be 85% effective in relieving muscle spasm in rheumatoid disease where the major disability was due to stiffness and aching. Abrahamsen and Baird [6] administered zoxazolamine to 28 children with the spastic form of cerebral palsy and in every instance found a decrease of muscle tone on passive flexion. Rodríquez-Gómez and associates [7] in a similar study found that 14 of 18 patients with spasticity resulting from injuries of the spinal cord showed objective relief of spasticity.

Method of Study

In view of the encouraging reports cited above, a clinical evaluation of these drugs was initiated at the Institute of Physical Medicine and Rehabilitation. In a double-blind study, patients with spasm ranging from moderate to severe were given zoxazolamine or zoxazolamine placebo and chlorpromazine or chlorpromazine placebo in different combinations and dosages. The drugs were ordered by code and at no time did any of the reporting personnel know the drug combinations the patients were receiving. We felt that the only practical means of evaluating the merit of an antispasm medication was to assess clinically both its subjective and its objective effect on the patient. Daily reports (table 1) were submitted by the patient, his resident physician, his nurse, his full-time or part-time attendant, physical therapists, occupational therapists, and instructors in activities of daily living. Personnel were assigned to each patient on a permanent basis for the duration of the study.

Table 1.—*Study of Spasms and Spasticity*

Patient..
Date..Hour...................
Observer..

General performance in activity (check one)	Good..................................
	Fair..................................
	Poor..................................
Number of spasms (Check one)	None..................................
	Occasional..................................
	Frequent..................................
	Constant..................................
Severity of spasms (Check one)	Mild..................................
	Moderate..................................
	Severe..................................

Comments (e.g., almost fell out of chair, could not ambulate because of spasms, patient's emotional status, alertness, etc.)

To be completed daily for each patient by supervisor of each activity for which he is scheduled. If patient is absent, please so indicate. Reports to be turned in to department heads daily.

Report of Cases

Eight patients were included in the study regarding the effect of zoxazolamine and/or chlorpromazine in ameliorating skeletal muscle spasticity due to spinal cord injuries.

Case 1.—This 22-year-old male student suffered a vertebral fracture dislocation of T-10 and T-11 in an automobile accident on May 13, 1954. At laminectomy the spinal cord was found to be three-quarters transected. The patient was admitted to the

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Institute of Physical Medicine and Rehabilitation on Jan. 3, 1956, and was found to have complete motor and sensory loss below the level of the 10th thoracic dermatome. There was moderate spasticity of both lower extremities which interfered with ambulation in braces.

TABLE 2.—*Drugs and Dosage (Case 1)**

Date 1956		Side-Effects
5/17	500 mg. zoxazolamine placebo 25 mg. chlorpromazine	
5/23	500 mg. zoxazolamine 25 mg. chlorpromazine	Dizzy, drowsy
5/31	1,000 mg. zoxazolamine 25 mg. chlorpromazine	Dizzy, drowsy
6/ 4	500 mg. zoxazolamine placebo 25 mg. chlorpromazine	"Feels better"
6/ 6	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine placebo	
6/12	500 mg. zoxazolamine placebo	
6/24	Home	

* No decrease in spasm; all drugs given 4 times a day.

CASE 2.—This 33-year-old man sustained a vertebral fracture-dislocation in an automobile accident on Jan. 28, 1955. He was admitted to the Institute of Physical Medicine and Rehabilitation on March 24, 1955, with severe spasticity of all four extremities which virtually prohibited all efforts at rehabilitation.

TABLE 3.—*Drugs and Dosage (Case 2)**

Date 1956		Side-Effects
5/17	500 mg. zoxazolamine 25 mg. chlorpromazine	
5/23	1,000 mg. zoxazolamine placebo 50 mg. chlorpromazine	
5/31	1,000 mg. zoxazolamine 50 mg. chlorpromazine	
6/ 1	1,000 mg. zoxazolamine	Drowsy, heart burn, malaise, "out of sorts"
6/ 4	50 mg. chlorpromazine	
6/ 5	750 mg. zoxazolamine placebo 50 mg. chlorpromazine	Drowsy
6/ 6	50 mg. chlorpromazine placebo	Bright
6/11	50 mg. chlorpromazine placebo	Weak, tired
6/12	750 mg. zoxazolamine 50 mg. chlorpromazine placebo	Nauseated
6/13	750 mg. zoxazolamine	Still nauseated
6/14	50 mg. chlorpromazine placebo	
6/15	Cut all drugs	No nausea
6/18	Off study	
6/28	Intrathecal alcohol wash done, with relief of spasms in torso and lower extremities	

* No decrease in spasm; all drugs given 4 times a day.

CASE 3.—This 44-year-old man had pain in his back on Aug. 10, 1953, followed by paraplegia at a level of the 10th thoracic vertebra. Laminectomy revealed a large epidural abscess which was evacuated. There then developed muscle spasm below the level of the injury of such severity as to produce dislocation of the right hip. The following surgical procedures were subsequently performed for relief of pain and spasm: (1) Jan. 6, 1954, bilateral obturator neurectomy; (2) Nov. 30, 1954, right femoral nerve crush and partial section of right psoas; (3) Dec. 9, 1954, sectioning of the anterior and posterior roots of T-10 and T-11 and of the anterior roots of T-12 and L-1 and L-2; (4) Feb. 1, 1956, anterior rhizotomy from L-2 to L-5; (5) March 30, 1956, spinothalamic tractotomy; (6) April 16, 1956, posterior rhizotomy from T-9 to L-2, right. Despite these multiple surgical procedures, when the patient was admitted to the Institute of Physical Medicine and Rehabilitation on May 1, 1956, severe spasm in both lower extremities continued to impede rehabilitation.

CASE 4.—This 40-year-old man sustained a spinal cord injury in an automobile accident July 19, 1954, with resultant quadriplegia at the level of the fifth cervical vertebra. He was admitted to the Institute of Physical Medicine and Rehabilitation on March 16, 1956, and spasms were found to be severe in all four extremities and trunk. There was normal range of motion on those occasions when the spasm could be broken through. Spasticity was so severe as to preclude attempts at rehabilitation.

TABLE 4.—*Drugs and Dosage (Case 3)**

Date 1956		Side-Effects
5/17	500 mg. zoxazolamine	
5/23	1,000 mg. zoxazolamine	Nausea
5/28	No drugs	Nausea subsides
5/31	750 mg. zoxazolamine placebo	
6/12	750 mg. zoxazolamine	
6/14	Off study	

* No decrease in spasm; all drugs given 4 times a day.

CASE 5.—This 22-year-old male college student sustained a paraplegia at the level of the second thoracic vertebra after a bullet injury to the spinal cord in September, 1955. He was admitted to the Institute of Physical Medicine and Rehabilitation on March 20, 1956. Moderate spasticity of the lower extremities interfered with bracing and with transfer activities.

TABLE 5.—*Drugs and Dosage (Case 4)**

Date 1956		Side-Effects
5/17	500 mg. zoxazolamine placebo 25 mg. chlorpromazine	
5/23	1,000 mg zoxazolamine 25 mg. chlorpromazine	
5/31	1,000 mg. zoxazolamine placebo 25 mg chlorpromazine	
6/ 6	1,000 mg. zoxazolamine 25 mg. chlorpromazine	
6/11	1,000 mg. zoxazolamine 25 mg. chlorpromazine	Sleepy, nausea
6/12	1,000 mg. zoxazolamine 25 mg. chlorpromazine	Epigastric distress, nausea, sleepy, short of breath
6/13	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine	Nausea disappears
6/26	1,000 mg. zoxazolamine 25 mg. chlorpromazine	
7/24	Home—refused alcohol wash	

* No decrease in spasm; all drugs given 4 times a day.

CASE 6.—This 45-year-old steel-foundry worker experienced the sudden onset of severe interscapular pain on Oct. 8, 1955, followed shortly by quadriplegia. Laminectomy disclosed a protruded intervertebral disk compressing the spinal cord between C-7 and T-1. Spasticity was marked in the trunk and both lower extremities upon admission to the Institute of Physical Medicine and Rehabilitation on April 10, 1956. It was impossible for therapists to overcome the spasm.

TABLE 6.—*Drugs and Dosage (Case 5)**

Date 1956	
6/26	1,000 mg. zoxazolamine
6/30	1,000 mg. zoxazolamine 25 mg. chlorpromazine
7/ 1	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine placebo
7/ 6	1,000 mg. zoxazolamine 25 mg chlorpromazine placebo
7/14	Off study

* No decrease in spasm; no side-effects; all drugs given 4 times a day.

CASE 7.—This 65-year-old housewife noted the onset of an unsteady gait at the age of 50. This was followed by progressive weakness and spasms of both lower extremities. Upon ad-

TABLE 7.—*Drugs and Dosage (Case 6)**

Date 1956		Side-Effects
5/17	500 mg. zoxazolamine 25 mg. chlorpromazine	
5/23	500 mg. zoxazolamine placebo 25 mg. chlorpromazine	
5/31	1,000 mg. zoxazolamine 25 mg. chlorpromazine	Dizzy, sleepy
6/ 6	1,000 mg. zoxazolamine 25 mg. chlorpromazine placebo	
6/13	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine placebo	
7/ 1	1,000 mg. zoxazolamine 25 mg. chlorpromazine placebo	
7/14	Intrathecal alcohol wash done, with relief of spasms in lower extremities	

* No decrease in spasm; all drugs given 4 times a day.

mission to the Institute of Physical Medicine and Rehabilitation on April 7, 1956, the neurological findings were those of degenerative *pyramidal tract disease compatible with a diagnosis* of multiple sclerosis.

TABLE 10.—*Frequency and Severity of Spasm with Drug Combinations Used*

Case No.	Disability	Zoxazolamine and Chlorpromazine Frequency and Severity	Zoxazolamine and Chlorpromazine Placebo Frequency and Severity	Zoxazolamine Placebo and Chlorpromazine Frequency and Severity	Zoxazolamine Placebo and Chlorpromazine Placebo Frequency and Severity
1....................	Traumatic paraplegia	Unchanged	Drug combinations not used	Unchanged	Unchanged
2....................	Traumatic quadriplegia	Unchanged	Unchanged	Unchanged	Unchanged
3....................	Epidural abscess with paraplegia	Unchanged	Drug combinations not used	Unchanged	Drug combinations not used
4....................	Traumatic quadriplegia	Unchanged	Drug combinations not used	Unchanged	Drug combinations not used
5....................	Traumatic paraplegia	Unchanged	Unchanged	Drug combinations not used	Unchanged
6....................	*Quadriplegia after spinal cord pressure*	Unchanged	Unchanged	Unchanged	Unchanged
7....................	Multiple sclerosis	Decreased	Decreased	Unchanged	Unchanged
8....................	Cerebrovascular accident right hemiplegia	Unchanged	Drug combinations not used	Unchanged	Drug combinations not used

TABLE 8.—*Drugs and Dosage (Case 7)**

Date 1956		Effect on Spasm
5/17	500 mg. zoxazolamine placebo 25 mg. chlorpromazine	No change
5/23	500 mg. zoxazolamine 25 mg. chlorpromazine	Slight reduction
5/31	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine	Spasm worse
6/ 6	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine placebo	No change
6/12	500 mg. zoxazolamine 25 mg. chlorpromazine placebo	Slight reduction
6/21	Home	

* No side-effects; all drugs given 4 times a day.

CASE 8.—This 41-year-old woman sustained a right hemiplegia in March, 1953. For many years prior to this, she had been hypertensive. At the time of her admission to the Institute of Physical Medicine and Rehabilitation on April 30, 1956, there was severe spasm in the right upper and lower extremities which markedly limited rehabilitation efforts.

Summary and Conclusions

A clinical study, in which the double-blind method was used, was conducted to evaluate the effectiveness of zoxazolamine, zoxazolamine placebo, chlorpromazine, and chlorpromazine placebo in various combinations and dosages for the relief of spasticity. Among eight patients studied (six quadriplegics and paraplegics, one multiple sclerotic, and one hemiplegic as a result of a cerebrovascular accident), only the patient with multiple sclerosis benefited (table 10) from the administration of zoxazolamine and chlorpromazine. The results reported here indicate that zoxazolamine and/or chlorpromazine are not effective in ameliorating skeletal muscle spasticity due to spinal cord injuries.

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TABLE 9.—*Drugs and Dosage (Case 8)**

Date 1956		Side-Effects
5/17	500 mg. zoxazolamine 25 mg. chlorpromazine	
5/23	1,000 mg. zoxazolamine 25 mg. chlorpromazine	Nausea, dizziness
5/28	1,000 mg. zoxazolamine placebo 25 mg. chlorpromazine	
6/ 6	1,000 mg. zoxazolamine	
6/ 7	Off study	

* No decrease in spasm; all drugs given 4 times a day.

The zoxazolamine used in this study was supplied as Flexin by McNeil Laboratories, Inc., Philadelphia, and the chlorpromazine was supplied as Thorazine by Smith, Kline & French Laboratories, Philadelphia.

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SEGAL'S TUBELESS GASTRIC ANALYSIS WITH AZURE A RESIN COMPOUND

A SIMPLE PROCEDURE FOR SCREENING INDIVIDUALS WITH ACHLORHYDRIA IN A GASTRIC CANCER DETECTION PROGRAM

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Patients with achlorhydria and hypochlorhydria show a much greater disposition to gastric cancer. Further, the early detection of pernicious anemia presents a problem because of the plethora of proprietary hematinics. As an aid to cancer detection, the tubeless method of determining free hydrochloric acid in the stomach removes many of the previous inconveniences which have discouraged widespread use of this screening test. However, pyloric obstruction, impairment of small intestinal absorption, hepatic disease, and impairment of renal function may interfere with the accuracy of the test.

Patients with achlorhydria, the so-called gastric cancer precursor group,[1] can be identified with a high degree of reliability by the simple method of tubeless gastric analysis devised by Segal and co-workers,[2] using orally administered azure A resin compound. This compound, ingested orally, colors the urine blue or blue-green if free hydrochloric acid is present in the stomach at the time of the test. We have found that, of 100 subjects who had been demonstrated by one or more intubation procedures to have achlorhydria, 95 showed anacidity by this simple tubeless method and that, of the 34 patients with proved pernicious anemia in this group, all showed anacidity by the tubeless technique. The significance of this finding is that this tubeless method of gastric analysis offers a simple procedure for screening persons with achlorhydria in cancer-detection centers, hospitals, outpatient departments, and doctors' offices. Once achlorhydria is detected, one may then institute periodically such other well-known examinations for the diagnosis of early asymptomatic gastric cancer as x-ray, gastroscopy, and cytology, which are not now practicable for use on a wide-spread, routine basis in the general population.

The azure A resin compound consists of a highly purified carboxylic acid cation-exchange resin (Amberlite XE-96), in which a specific number of hydrogen cations have been replaced by azure A dye cations. In the presence of dilute hydrochloric acid, the process is reversed and the azure A cations are displaced by the hydrogen cations of the free hydrochloric acid. A significant quantity of azure A is displaced in hydrochloric acid solutions with a pH lower than 3, with maximum displacement at a pH of 1.5.[2] The azure A dye, so released, is then absorbed in the small intestine and excreted in the urine, coloring it blue or blue-green.

The azure A resin compound was first introduced by Segal, Miller, and Plumb, in 1955,[3] as an improvement over the tubeless method of gastric analysis with quinine carbacrylic resin, which Segal and his associates employed previously.[4] Similar encouraging results were then reported by us [5] and by McGowan and Stanley,[6] Galambos and Kirsner,[7] Sievers and Gieselman,[8] and Bolt.[9] Our present study deals with the series of 100 subjects with achlorhydria referred to above.

Method

After at least an eight-hour fast, the patient swallowed a Levin tube, and a fasting gastric aspiration was obtained. Three hundred cubic centimeters of 5% alcohol was then administered into the stomach via the Levin tube, and gastric specimens were obtained at 15-minute intervals for a period of one hour. Each specimen was titrated for free and total acid by the usual routine method, with use of Töpfer's reagent and phenolphthalein as indicators. If free hydrochloric acid was absent, 1 mg. of histamine phosphate was injected subcutaneously, and two additional specimens were aspirated 15 and 30 minutes after the injection of histamine. These specimens were similarly titrated for free and total acid. Thirty minutes after the administration of histamine the Levin tube was removed without aspirating the stomach completely. The patient then voided, and this specimen was identified as the control urine. The patient was then given 2 Gm. of azure A resin compound orally with 150 cc. of water. At times an additional 50 to 75 cc. of water was allowed, to assure the ingestion of all of the insoluble azure A compound. Two hours later, the patient voided again and this specimen was identified as the test urine. This procedure was followed for 79 of the 100 subjects. These 79 patients included 31 with pernicious anemia.

The remaining 21 subjects comprised patients who were known to have achlorhydria by previous intubation studies. Only three in this group were patients with pernicious anemia. These 21 patients were not

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subjected again to a gastric analysis by intubation on the morning of the azure A test. These patients reported with empty stomachs, and, after voiding the control urine, they were given 1 mg. of histamine phosphate subcutaneously. Immediately thereafter, the azure A resin compound was administered as described above; the test urine was collected two hours later.

Two standard solutions of azure A were employed for color comparison, those containing 0.3 and 0.6 mg. The former was prepared by the addition of 0.3 mg. of azure A dye to 300 cc. of distilled water and the latter by the addition of 0.6 mg. of the dye to 300 cc. of distilled water. Aliquots of 10 cc. of the respective standard solutions were then poured into test tubes, and these two standard solutions were used for color comparison.

The control and the test urine specimens of each subject were diluted with water to a volume of 300 cc. Aliquots of 10 cc. of each diluted urine specimen were poured into test tubes, and each specimen was acidified with 1 drop of 18% hydrochloric acid. The test tubes were then heated in a bath of boiling water for a period of 10 minutes, after which they were allowed to cool slowly to room temperature. The color of the two urine specimens were then compared with the colors of the two standard azure A solutions.

Results of Azure A Tests in 100 Patients Found by Intubation Technique to Have Achlorhydria

	Patients, Total No.	Negative*	Borderline Positive†	Positive‡	Correlation of Two Tests, %
Patients with pernicious anemia.......	34	34	...	...	100
Patients without pernicious anemia.......	66	61	3	2	92
Total	100	95	3	2	95

* No change in color or color less than 0.3-mg. standard solution of azure A.

† Color equal to or more intense than 0.3-mg. standard but less intense than 0.6-mg. standard solution.

‡ Color equal to or more intense than 0.6-mg. standard solution.

It might be added that the 100 subjects in this series comprise a selected group of patients—selected, in that they failed to show free hydrochloric acid during one or several intubation tests. We concentrated on subjects with achlorhydria, because we were particularly interested in determining whether the azure A resin compound test is sufficiently accurate to warrant its use in the screening of subjects with achlorhydria, in whom the incidence of gastric cancer is high.

We excluded from this study patients known to have pyloric obstruction, impairment of small intestinal absorption, hepatic disease, or impairment of renal function and patients with urinary retention, since these conditions might interfere with the accuracy of the azure A test.

Interpretation of Results

In interpretation of the results, if the test urine specimen developed a blue color equal to or more intense than that of the 0.6-mg. standard solution, the test was interpreted as positive, i.e., as showing that the subje has secreted free gastric hydrochloric acid. If the te urine specimen developed a blue color ranging in i tensity from that of the 0.3-mg. standard to less tha that of the 0.6-mg. standard, the test was interprete as positive, but borderline, i.e., as showing that th subject did secrete free gastric hydrochloric acid b that it was probably of low hydrochloric acid conce tration. If the test urine specimen failed to develop blue color or developed a bluish color of less inte sity than that of the 0.3-mg. standard, the test was i terpreted as negative, i. e., as showing that the patie did not secrete free hydrochloric acid at the time of t azure A test. These interpretations were employed b us in our previous study of 114 patients, in each whom both the intubation method of gastric analys and the tubeless azure A method were employed du ing the same morning.[5] We found 95% accuracy wi the tubeless method, when the results were compar with those of the intubation technique.

Results

Details of the results are given in the table. It w be noted that the azure A test was negative in each the 34 patients with pernicious anemia, a correlati of 100%. Of the 66 patients without pernicious anem who were found to have achlorhydria on one or mo intubation tests, 61 showed negative azure A tests, correlation of 92%. Three patients showed positive b borderline tests, and two showed definitely positi azure A tests. In three of these five patients both t intubation and tubeless tests were repeated with si ilar discrepancy in the results. Of the 5 patients whose specimens free hydrochloric acid was shown be present on azure A tests, 3 were among the 79 whom the two tests were performed during the sam morning (4% failure of correlation) and 2 were amo the 21 on whom the two tests were performed durin different days (10% failure of correlation). Of the tot series of 100 subjects whose specimens failed to sho free hydrochloric acid when tested by the intubatio technique, 95 failed to show hydrochloric acid secr tion on the azure A test, giving an over-all correlati of 95%.

Comment

The 34 patients with proved pernicious anemia de nitely had true achlorhydria. In this group of patien the azure A tests were all negative, a correlation 100%. It is unlikely, however, that the 66 patients wit out pernicious anemia all had achlorhydria, since it well known that failure to find free hydrochloric ac in one or two series of fractional gastric analyses do not necessarily prove true achlorhydria, even thou effective doses of histamine are used. This might e plain the positive results on the azure A test in five the patients. These five patients might well be fou to be acid secretors on repeated intubation tests, was the case with several patients not included in this series. Consideration should also be given to a possible displacement of the azure A cations by hydrogen cations of the acid contents of the small intestine; this might account for an occasional positive azure A test among patients who have true gastric achlorhydria. This might also explain the voiding of blue-colored urine for a day or two after the azure A test, which occurred even among some of our patients with pernicious anemia.

As stated above, the 66 subjects without pernicious anemia. although they failed to show free hydrochloric acid on one or two intubation tests, do not necessarily have true achlorhydria. The same can be said for those whose specimens failed to show hydrochloric acid on the azure A test. In fact, we question whether the azure A test can be depended upon for a diagnosis of true achlorhydria, especially since the azure A cations are displaced by the hydrogen cations at a pH of only 3.[2] To prove true achlorhydria, patients would have to be subjected to repeated intubation studies, employing also other gastric secretory stimulants besides alcohol and histamine.[10] Also, it would be essential to determine the pH values for each of the gastric specimens studied.[10a] No doubt a number of these 66 subjects would be found to be acid secretors if such procedures were employed. We did not consider such a program essential for the present study, however, because we were interested primarily in determining the degree of correlation between the azure A test and the intubation test, which is generally in use, and in determining whether the azure A test is sufficiently accurate to warrant its use in a gastric cancer detection program in the screening of patients with both achlorhydria and hypochlorhydria, since each group has a greater disposition to gastric cancer. If it is assumed, as we believe that it can be assumed, that most of these 66 subjects who were shown to have achlorhydria by intubation tests have either achlorhydria or hypochlorhydria, then, indeed the 61 individuals with negative results and the 3 with borderline results on the azure A test are those who should be screened for subsequent careful and thorough study.

The greater disposition of patients with achlorhydia and hypochlorhydria to gastric cancer is well known. Recently Hitchcock and co-workers [1] reported that the incidence of gastric cancer in this group is 5.2 times higher than would be expected in a similar age group in the general population. These authors employed the intubation method of gastric analysis, employing histamine as the gastric secretory stimulant. The even greater disposition of patients with pernicious anemia to gastric cancer is also well known. The same authors reported that, in patients with pernicious anemia, the incidence was 18.3 times higher. Other studies indicate that gastric cancer is found once in each 100 patients with gastric anacidity; in patients with pernicious anemia, the incidence of gastric cancer may be as high as 3 to 5 per 100 patients examined.[11] Depending on the sample selected. Zamcheck and coworkers [12] found that the frequency of gastric cancer among patients with pernicious anemia varied from less than 1% to more than 11%. It might be added that the early detection of pernicious anemia also presents a problem nowadays because of the plethora of proprietary hematinics, which mask many cases of pernicious anemia.

The great inconvenience of and the time required by the intubation method of gastric analysis have discouraged the test's widespread use as a screening device for identifying patients with achlorhydria. With the tubeless method, these deterrents are absent. The following conditions, however, may interfere with the accuracy of the azure A test: pyloric obstruction, impairment of small intestinal absorption, hepatic disease, and impairment of renal function.

Of course, it is well known that gastric cancer occurs also among individuals with normal values of free gastric hydrochloric acid. We are of the opinion, however, that an aggressive program of cancer detection among persons with achlorhydria and hypochlorhydria, in whom the incidence of gastric cancer is high, would certainly be a step in the right direction. As a first step in this program, it is recommended that the azure A tubeless method of gastric analysis be instituted as a routine screening procedure in cancer-detection centers, hospitals, outpatient departments, and physicians' offices. Once achlorhydria or hypochlorhydria is detected, the patients may then be subjected regularly to the other well-known examinations for the detection of early asymptomatic gastric cancer, such as x-ray, gastroscopy, and cytology. Such a program is now in operation in the outpatient department at Harper Hospital, Detroit, for all patients 40 years of age and older.

Summary

One hundred subjects found to have achlorhydria by the intubation method of gastric analysis were subjected to Segal's tubeless method of gastric analysis, with use of the orally administered azure A resin compound, which colors the urine blue or blue-green when free hydrochloric acid is present in the stomach. Alcohol and histamine phosphate were used as the gastric secretory stimulants. Thirty-four of the subjects were patients with proved pernicious anemia. Seventy-nine of the patients were subjected to the two tests during the same morning and 21 patients on different mornings.

Of the 34 patients with pernicious anemia, all showed negative results on the azure A test—a correlation of 100%. Of the 66 subjects without pernicious anemia, 61 showed negative results on the azure A test— a correlation of 92%. Three patients showed positive but borderline results, and two patients had definitely positive results. Of the 5 patients who failed to show correlation between the two tests, 3 were among the 79 patients on whom the two tests were performed during the same morning (4% failure of correlation) and 2 were among the 21 patients on whom the two tests were performed on different days (10% failure of correlation). Of the total 100 subjects, 95 showed negative results on the azure A test—an over-all correlation of 95%.

Our data indicate that Segal's tubeless method of gastric analysis with azure A resin is sufficiently accurate to warrant its use in screening patients for achlorhydria and hypochlorhydria, in whom the incidence of gastric cancer is known to be high. Once these conditions are detected, the other well-known examinations for the detection of early asymptomatic gastric cancer, such as x-ray, gastroscopy, and cytology, which are not now practicable for use on a widespread routine basis in the general population, may then be instituted and used periodically.

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The azure A resin compound used in this study was supplied by E. R. Squibb and Sons, New York.

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SOLOX INTOXICATION

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Solox is the trade name for a shellac and paint solvent consisting primarily of ethyl alcohol and methanol. The clinical picture of Solox intoxication, by ingestion, is coma, a foul chemical odor to the breath (similar to wood alcohol with a superimposed, sweetish, acetone-like overtone), acidosis, and, of particular importance, hypoglycemia. There is a peculiar extensor rigidity of the extremities, apparently correlated with the hypoglycemia. Therapy is usually toward correcting the acidosis, alleviating the hypoglycemia, preventing complications, and giving supportive care. Recovery is complete if death does not intervene.

Severe hypoglycemia from any cause is a grave medical emergency because of the rapidity with which irreversible cerebral damage or death may ensue. It is, thus, of the utmost importance to diagnose and treat this condition correctly and rapidly. Solox "smoke" intoxication is a relatively common cause for profound hypoglycemia, but the condition frequently appears under circumstances tending to obviate the recognition of that hypoglycemia. Solox is the trade name for a shellac solvent made according to the following formula: pure ethyl alcohol, 100 gal.; denatured grade wood alcohol, 5 gal.; gasoline, 1 gal.; ethyl acetate, undenatured, 1 gal.; methyl isobutyl ketone, 1 gal. Brown and Harvey[1] in 1941 reported six patients who were brought to Johns Hopkins Hospital in hypo-

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glycemic coma after drinking what was believed to be a liquid paint remover. Tucker and Porter[2] reported four similar cases in 1942 and stated, "It is well known that a preparation sold under the name of 'Solox' is widely used in the Richmond (Va.) area as a beverage." Bennett[3] has observed Solox intoxication to be a frequent occurrence in the southern states.

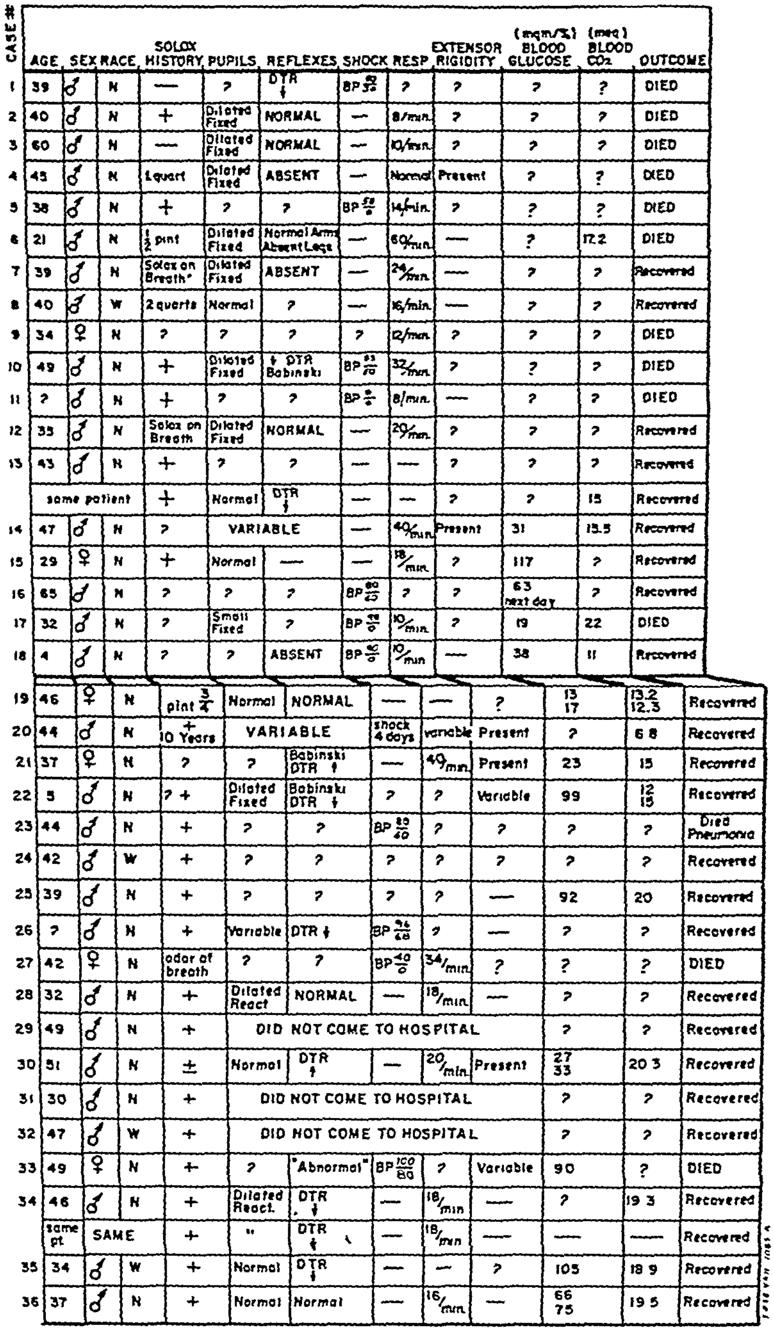
The exact number of patients brought to a hospital with Solox intoxication cannot be obtained. A history is usually not available, and the frequent emergency treatment of alcoholism with intravenous injection of hypertonic dextrose solution may alleviate the hypoglycemia. Because this disorder is not widely recognized, most of these individuals are treated only in the emergency wards and are never admitted to the hospital.

Selection of Patients

This study consists of patients seen in the admission rooms or admitted to the wards of both the University Hospital and the Veterans Administration Hospital, Birmingham, Ala., from 1946 to 1956. Thirty-six patients either gave a history of drinking Solox or presented a clinical picture typical enough to be diagnosed as such. All but four of these were Negroes, and the majority had been chronic alcoholics for several years. The purpose of this paper is to present and discuss the effects of Solox intoxication in these patients and to emphasize the hypoglycemia which is frequently present. Severe acidosis, methanol poisoning, or hypoglycemia necessitated hospitalization of many of these patients, and death was a frequent occurrence. It was considered likely that 15 other patients had consumed this mixture, but the data were not conclusive enough to merit their inclusion in this series. The figure presents certain clinical and laboratory findings of these patients.

Clinical Picture

An immediate history is seldom obtained from these patients because they are usually comatose. History obtained subsequently from relatives or friends reveals that chronic alcoholism has usually been present, with a degree of malnutrition and starvation compatible with the extent of the alcoholic debauch. Solox intoxication and acute ethanol intoxication are so similar that very few patients are brought to the attention of physicians unless coma or other complications occur which necessitate emergency care. Occasionally, when the patient is conscious, he may complain of blurred vision, intense cramping abdominal pain, and burning of the eyes. The abdominal pain is often relieved by intravenously administered hypertonic dextrose solution. The odor of the breath is characteristic, but it is difficult to describe. There is a foul, chemical odor, similar to wood alcohol, with a superimposed, sweetish, acetone-like overtone. It is distinctly different from, and should not be confused with, the acetone odor of diabetic acidosis.



CASE #	AGE	SEX	RACE	SOLOX HISTORY	PUPILS	REFLEXES	SHOCK	RESP	EXTENSOR RIGIDITY	(mgm/%) BLOOD GLUCOSE	(meq) BLOOD CO₂	OUTCOME
1	39	♂	N	—	?	DTR ↓	BP $\frac{52}{30}$	?	?	?	?	DIED
2	40	♂	N	+	Dilated Fixed	NORMAL	—	8/min.	?	?	?	DIED
3	60	♂	N	—	Dilated Fixed	NORMAL	—	10/min.	?	?	?	DIED
4	45	♂	N	1 quart	Dilated Fixed	ABSENT	—	Normal	Present	?	?	DIED
5	38	♂	N	+	?	?	BP $\frac{58}{0}$	14/min.	?	?	?	DIED
6	21	♂	N	½ pint	Dilated Fixed	Normal Arms Absent Legs	—	60/min.	—	?	17.2	DIED
7	39	♂	N	Solox on Breath"	Dilated Fixed	ABSENT	—	24/min.	—	?	?	Recovered
8	40	♂	W	2 quarts	Normal	?	—	16/min.	—	?	?	Recovered
9	34	♀	N	?	?	?	?	12/min.	?	?	?	DIED
10	49	♂	N	+	Dilated Fixed	↓ DTR Babinski	BP $\frac{83}{70}$	32/min.	?	?	?	DIED
11	?	♂	N	+	?	?	BP $\frac{0}{0}$	8/min.	—	?	?	DIED
12	35	♂	N	Solox on Breath	Dilated Fixed	NORMAL	—	20/min.	?	?	?	Recovered
13	43	♂	N	+	?	?	—	—	?	?	?	Recovered
	same patient			+	Normal	DTR ↓	—	—	?	?	15	Recovered
14	47	♂	N	?	VARIABLE		—	40/min.	Present	31	13.5	Recovered
15	29	♀	N	+	Normal	—	—	18/min.	?	117	?	Recovered
16	65	♂	N	?	?	?	BP $\frac{80}{25}$	?	?	63 next day	?	Recovered
17	32	♂	N	?	Small Fixed	?	BP $\frac{48}{0}$	10/min.	?	19	22	DIED
18	4	♂	N	?	?	ABSENT	BP $\frac{40}{0}$	10/min	—	38	11	Recovered
19	46	♀	N	pint $\frac{3}{4}$	Normal	NORMAL	—	—	?	13 17	13.2 12.3	Recovered
20	44	♂	N	+ 10 Years	VARIABLE		shock 4 days	variable	Present	?	6 8	Recovered
21	37	♀	N	?	?	Babinski DTR ↓	—	40/min.	Present	23	15	Recovered
22	5	♂	N	? +	Dilated Fixed	Babinski DTR ↓	?	?	Variable	99	12 15	Recovered
23	44	♂	N	+	?	?	BP $\frac{80}{40}$	?	?	?	?	Died Pneumonia
24	42	♂	W	+	?	?	?	?	?	?	?	Recovered
25	39	♂	N	+	?	?	?	?	—	92	20	Recovered
26	?	♂	N	+	Variable	DTR ↓	BP $\frac{96}{68}$	?	—	?	?	Recovered
27	42	♀	N	odor of breath	?	?	BP $\frac{40}{0}$	34/min.	?	?	?	DIED
28	32	♂	N	+	Dilated React	NORMAL	—	18/min.	—	?	?	Recovered
29	49	♂	N	+	DID NOT COME TO HOSPITAL					?	?	Recovered
30	51	♂	N	±	Normal	DTR ↓	—	20/min.	Present	27 33	20 3	Recovered
31	30	♂	N	+	DID NOT COME TO HOSPITAL					?	?	Recovered
32	47	♂	W	+	DID NOT COME TO HOSPITAL					?	?	Recovered
33	49	♀	N	+	?	"Abnormal"	BP $\frac{100}{80}$	?	Variable	90	?	DIED
34	46	♂	N	+	Dilated React.	DTR ↓	—	18/min	—	?	19 3	Recovered
	same pt	SAME		+	"	DTR ↓	—	18/min	—	—	—	Recovered
35	34	♂	W	+	Normal	DTR ↓	—	—	?	105	18 9	Recovered
36	37	♂	N	+	Normal	Normal	—	16/min.	—	66 75	19 5	Recovered

Clinical and laboratory findings of 36 patients suffering from Solox intoxication. Blood and cerebrospinal fluid determinations were by method of Folin and Wu. Carbon dioxide-combining power was determined by the method of Van Slyke. DTR=deep tendon reflexes.

On physical examination the blood pressure and pulse are usually normal unless an injury has been sustained. The respirations may be deep and rapid or shallow and depressed, depending on the state of narcosis. Despite laboratory evidence of severe acidosis, some patients have normal respirations, but during recovery a transient period of hyperpnea may develop. The neurological picture is bizarre and changes during the course of the illness. There is often extreme irritability of the central nervous system as manifested by mania and convulsions in the less comatose patients. The pupils are usually widely dilated and fixed; anisocoria may also be present. The importance of the possibility of intracranial injury becomes evident, and this must be excluded by skull films, neurological examination, and careful observation during the intoxicated phase. The gag and cough reflexes are frequently diminished so that aspiration of vomitus occurs. Generalized flaccidity may be observed, with no deep tendon reflexes obtainable; however, this may alternate with extensor rigidity of the extremities if hypoglycemia is present. The response to pain is diminished over the entire body. Pathological reflexes may or may not be present. Bilateral Babinski reflexes have been observed to revert to normal as recovery occurs.

Examination of the lung fields often reveals evidence of pneumonitis. In such instances, numerous rales are heard on auscultation, and they simulate acute pulmonary edema. Digitalization may become necessary as a precautionary measure because acute cardiac decompensation frequently cannot be excluded clinically. This picture is also seen in other hydrocarbon ingestions such as gasoline, kerosene, and petroleum oils. Laboratory evidence of a mild to severe acidosis usually is present, with a carbon dioxide–combining power much lower than the clinical picture would suggest. The blood sugar level may be normal or markedly decreased, with concentrations as low as 13 to 17 mg. per 100 cc. The extensor rigidity of the extremities is apparently correlated with the hypoglycemia. Blood ketones have been observed to be 60 times normal, with blood lactate 8 times normal during the acute intoxication phase. Acetonuria has been present in many of these patients, but never as marked as in diabetes mellitus. Despite the bizarre neurological picture, the cerebrospinal fluid findings are not remarkable; however, no lumbar punctures were made during the hypoglycemic phase.

The course of the illness is variable and depends upon the individual response to the relatively small amount of methanol, and to other complications such as trauma, aspiration of vomitus, and intercurrent disease. Most of these patients are never seen at a hospital and presumably recover without treatment. Death is infrequent in patients who are treated promptly, but chronic mental and physical degeneration may accompany repeated episodes of intoxication.

Pathological Findings

Ten autopsies have been performed at the University hospital on patients believed to have ingested Solox prior to death. Chemical tests, when performed, have demonstrated ethanol and methanol in all tissues, especially the brain, kidneys, and liver. Fatty change of the liver, generalized congestion of all organs, and pulmonary and cerebral edema have been the most frequent findings at autopsy. Three patients have shown pancreatic hemorrhages, but these changes could not be correlated with the hypoglycemic picture, as blood sugar determinations were not done prior to death. The pathological changes represent those found with combined ethanol and methanol intoxication but give no insight into the mechanism of the hypoglycemia.

Treatment

Therapy has usually been directed toward correcting the acidosis, alleviating the hypoglycemia, preventing complications, and giving supportive care. Sodium lactate solution has been used intravenously with success for the acidosis. As a high blood lactate level has been noted during the acute phase, it may be better to use a 2% solution of sodium bicarbonate. Hypertonic dextrose solution given intravenously at 4-to-6-hour intervals for the first 24 hours will usually correct and prevent a recurrence of the hypoglycemia. Patients should be observed carefully for 24 hours after ingestion of Solox because of the frequent recurrence of the hypoglycemia at any time during this period.[4] With prompt diagnosis and treatment, the death rate declines (see figure). Pneumonia has been a frequent complication, and it is advisable to use antibiotics prophylactically and to do a bronchoscopy, if aspiration has occurred. Intravenous therapy with levarterenol or other pressor agents may become necessary, but usually shock is associated only with concurrent injuries.

Comment

Solox intoxication is seen rather frequently in large city hospitals. The clinical picture is so variable that the diagnosis may not be made unless the syndrome is remembered each time a comatose alcoholic is seen. Coma, chemical odor to the breath, hypoglycemia, extensor rigidity of the extremities, unequal deep tendon reflexes, and abnormal reflexes may be seen. As with methyl alcohol, there apparently is a great individual variability of response. All members of a group may drink the same amount, but only a few will develop toxic symptoms. Prolonged usage without any demonstrable ill-effects is very common. Patients have admitted consuming this substance almost each weekend for a period of 10 years without evidence of damage determined by physical examination or laboratory procedures. Although Bennett[5] and Brown and Harvey[1] observed no patients with severe acidosis, patients have been seen in this series with carbon dioxide–combining powers as low as 3.8 mEq. per liter. All of the patients observed with hypoglycemia have been acutely intoxicated in contrast to reports by Tucker and Porter[2] who observed this complication in patients who had slept overnight.

The peculiar extensor rigidity of the extremities is apparently correlated with the hypoglycemia. A similar reaction is often observed in patients with insulin hypoglycemia and hypoglycemia associated with other diseases, such as the "vomiting sickness of Jamaica," which has been reported by Jelliffe and Stuart.[6] The clinical picture of the vomiting sickness is identical to Solox intoxication and is thought to be due to ingestion of toxic wild berries of the genus Blighia sapida. Hypoglycemia, extensor rigidity, coma, convulsions, and death may occur with this syndrome. Recovery is complete if death does not intervene. A liver biopsy performed on one of these patients revealed almost complete absence of liver glycogen. Hassall and others[7] isolated polypeptides from the berries of Blighia sapida and found that these will cause experimental hypoglycemia in animals. The have called these substances hypoglycin A and B. The effect of these compounds on liver glycogen and blood sugar was more than doubled when starvation was present.

The cause of hypoglycemia in Solox intoxication is not known. Intoxication produced experimentally with Solox in normal and starved dogs by Brown and Harvey,[1] and an extensive series of tests on rabbits by Bennett[3] have failed to produce hypoglycemia. The animals were kept comatose for hours, but the result was narcosis only.

There has been no evident hepatic disease to account for the hypoglycemia in the patients in this study. However, in view of the marked glycogen depletion seen in the vomiting sickness of Jamaica, it is obvious that this may be a contributing factor. Malnutrition resulting from the use of alcohol as a food substitute may prepare the liver so that the normal conversion of glycogen to glucose cannot occur as rapidly as is necessary for homeostasis.

Selective poisoning of enzyme systems in the liver is another possibility, although it seems unlikely because of the rapid and complete reversibility of the process. Lesions of the central nervous system have been known to be associated with hypoglycemia, and it is interesting to speculate on a similar irritative effect of Solox. There is nothing clinically or experimentally to substantiate this, however. Evans and co-workers[8] have reported that disruption of sympathetic impulses to the liver of a cat can cause hypoglycemia.

Although occasionally ethanol intoxication alone may be associated with spontaneous "functional" hypoglycemia and hyperventilation syndrome,[9] none of the constituents of Solox do this frequently. Gasoline intoxication may cause tonic muscle spasm, thereby simulating the extensor rigidity. The other constituents either alone or in combination are known to produce cerebral and pulmonary edema, narcosis, coma, and convulsions. Pathologically, these compounds cause fatty change in the liver and kidneys, as well as generalized congestion of all organs.

A majority of the clinical and pathological manifestations are explained by a study of the toxicity of the individual constituents. However, the origin of the frequent and severe hypoglycemia remains obscure. Any of the known causes of hypoglycemia discussed in this paper or possibly unknown homeostatic mechanisms may be involved. The difficulty of study of such patients is obvious, and the rapid treatment necessarily precludes adequate investigation of the hypoglycemia.

Summary

Intoxication with a paint solvent called Solox has been seen frequently in several southern states. A study was carried out of 36 patients with this condition seen at the University Hospital or the Veterans Administration Hospital, Birmingham, Ala. Coma, chemical odor to the breath, acidosis, and hypoglycemia characterize the syndrome. Death may occur as the result of methanol poisoning, respiratory depression, or complications such as aspiration pneumonia. Autopsy findings have been nonspecific. The mechanisms of the hypoglycemia is not understood and most attempts to reproduce hypoglycemia in animals have failed. The syndrome is similar to the "vomiting sickness of Jamaica," in which a toxic hypoglycemia follows ingestion of wild berries.

Addendum

Since the writing of this paper, a patient has been observed with a blood glucose level of 12 mg. per 100 cc. and cerebrospinal fluid sugar level of 10 mg. per 100 cc. This emphasizes the severity of the hypoglycemia to which the central nervous system is subjected.

The formula for Solox was given by U. S. Industrial Chemicals Company, New York City.

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HEMATOLOGY—RECORD OF A CENTURY: 1856-1956

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One hundred years ago the word anemia was in use, although few measurements of blood had been performed. Purpura and plethora were classified, but there were few, if any, supporting laboratory studies. Blood cells were examined in the fresh state without staining, and blood cell counting was just beginning. Fifty years ago, reduced platelets were described in connection with purpura hemorrhagica, and the blood groups were discovered. A little over a quarter of a century ago, the effects of liver in pernicious anemia opened wide the newer hematology, in which pathophysiology was emphasized. At present we are at the beginning of the era of hematological chemistry. This will undoubtedly lead to expansion in the fields of coagulation disorders, immunohematology, and the hemoglobin abnormalities. The prevention of useless blood loss and the conservation of this most precious fluid for an increasingly healthy society must be the constant aim of the world-wide fraternity of hematologists.

As we meet here in this, the 10th year of our society, and at what I am sure is the largest single world-wide gathering of hematologists ever held, it is well to reflect for a while on hematology as it was, as it is now, and what it might become in the not too distant future. What hematology in all its complexity has become can be seen by a quick glance through our voluminous program, but, lest we feel smug at all our knowledge, let us mention but a few names—leukemia, hemophilia, paroxysmal nocturnal hemoglobinuria (PNH)—and we are immediately aware of how little we actually know of these and other equally mysterious states. Still, the 100 years immediately behind us have witnessed an enormous advance in hematology, certainly as rapid as in other fields of medicine, and perhaps more so than in most.

In 1856, the word *anemia* was in use, although as yet very few actual measurements of the blood had been performed. Just the preceding year, Addison had first used the designation of "idiopathic" anemia. Although Addison's descriptions of what we know now as pernicious anemia were of some accuracy, it is curious that he chose to bracket his descriptions of the anemic disease with those of the suprarenal capsule. Also in 1855, Virchow first accepted the term leukemia, after his original description of "Weisses Blut," and this name has stuck. Purpura and plethora, conditions of ancient lineage, were classified and subclassified; but without laboratory studies, little progress could be made. For all of these conditions, even for many cases of anemia, "bleedings" were performed as an important means of therapy. In chlorosis, the "green sickness," however, Sydenham the English clinician (1624-1689) and later Pierre Blaud in 1832 used large doses of iron with excellent results.

In 1856 the place of the laboratory in hematological studies was primitive indeed. Blood cells were examined in the fresh state without staining; blood cell counting was just beginning (Vierordt, Welcker). But, in the next two decades, great strides were made. First, there was the development of hematometry (Potain, Malassez, Gowers, Hayem). Later came the introduction of analine dye staining techniques by that great genius, the father of hematology whose 100th birthday we celebrated two years ago, Paul Ehrlich. May I quote from an editorial of mine published in *Blood* two years ago:

> The impact of Ehrlich's discovery and its widespread effects on many fields cannot of course be assessed, but it was certainly considerable. It is illustrative of the importance of the development of a method—for this simple staining technic made possible the study of many different kinds of blood cell reactions, including those found in infections, in the different types of anemia, and in leukemia. In the blood, he devised differential counting, made sharp distinctions between the various types of leukocytes and their granules, described polychromatophilia and poikilocytosis, and pointed to the close relationships existing between the blood picture and the bone marrow.
>
> For the first time the marrow could be adequately stained and carefully studied. Here, Ehrlich described the myelocyte, which he considered as the precursor of the granulated white cells of the blood; the megaloblast of pernicious anemia, which he distinguished from the normoblast; the mast cell; and the fatty picture of aplastic anemia.

There can be no question of the enormous effect the introduction of these two rather simple methods, cell counting and cell staining, had on the development of hematology. It was now possible to recognize and describe all manner of "new" diseases, previously "hidden" from view. Hematology threw off its colorless shackles and dazzled its devotees with Ehrlich's reds, blues, and violets; sometimes too much so, to judge by the lengthy polemical articles that were written by such masters as Pappenheim, Nägeli, and their contemporaries.

By 1900, hematology was well on its way. In Ehrlich and Lazarus' textbook, published at the turn of the century, there were large chapters on normal and pathological physiology of the blood, simple chronic anemia, progressive pernicious anemia, chlorosis, acute lymphatic leukemia, chronic lymphatic leukemia, pseudoleukemia, and myeloid leukemia. Hayem went further. His textbook "Du Sang," published in 1889, and his "Leçons" of 1900, did more to put hematology

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Presidential address, read before the sixth Congress of the International Society of Hematology, Boston, Aug. 29, 1956.

on a firm basis than almost anything else. It was easy to see how far ahead of his time was this little giant who trod the Parisian scene for so many years. His descriptions of purpura hemorrhagica, in which for the first time he noted that the platelets (hematoblasts) were greatly reduced; his discussions on paroxysmal hemoglobinuria, cyanosis, hyperglobulia, and other subjects are just as fresh now as they were when they were written 56 years ago. In 1900, too, Landsteiner, then a Viennese, while working in the old Allgemeines Krankenhaus, made his epic discovery of the blood groups and before that, with Donath, was the first to find an autohemolysin in paroxysmal hemoglobinuria.

Advances in Hematology in the Twentieth Century

It was an auspicious beginning for the new century. Hemolytic anemia was first distinguished and studied extensively by various groups in Paris and Italy. Here in America Herrick, in 1910, first described sickle cell anemia. Banti focused his attention on the spleen as a hemolytic and "noxa"-producing organ and was the first (with Micheli) to recommend splenectomy as a therapeutic procedure. In 1916 Kaznelson instituted splenectomy for idiopathic thrombocytopenic purpura. Experimental and physiopathological hematology were beginning. Transfusions, based on Landsteiner's principles of blood grouping, began to be used, particularly when citrate was introduced as an anticoagulant by the Argentinian Agote in 1915 and by Lewisohn in New York (1914-1916). Leukemia was treated first by chemicals (arsenic, benzol) but later by x-rays, radium, and mesothorium.

By 1923, hematology was a rather dull, but respectable specialty: in some areas dominated by the pathologists; in some, as in New York, by the transfusionists; and here in Boston by the clinicians. We had here at that time Richard C. Cabot, whose horizons had already extended beyond hematology; James Homer Wright of megakaryocyte-platelet fame; and George R. Minot. Minot was fundamentally a clinician but at the same time an investigator. He believed passionately in clinical investigation; i. e., noting the problem in the patient, taking it to the laboratory for experimentation, bringing back the findings of the laboratory for further enlightenment in the clinic. With James H. Means, he talked to us constantly at school of the pathological physiology of disease and alluded only briefly to the morphologic aspects of the blood cells, so beloved by the European hematologists. Whipple's experiments indicating the remarkable effects of liver in the hemorrhagic anemia of dogs led Minot to try this substance in pernicious anemia with the almost incredible results all of of you know so well. This may be said to have opened up and revitalized the whole field of hematology, so that now its rate of advance became well-nigh phenomenal.

Castle's studies of the "conditioned" deficiency state of pernicious anemia led the way in the new pathophysiology of hematology. The hemolytic diseases opened up; at first the immunological forms: autoimmune and iso-immune; later, the pathophysiology of the hereditary forms, spherocytosis and sickle cell disease, were investigated. A rare mysterious disease, paroxysmal nocturnal hemoglobinuria, opened up all kinds of new vistas in intravascular blood destruction, iron deposition and excretion, the effects of plasma constituents on the abnormal red blood cells of the disease, and many other fascinating subjects. Polycythemia with its numerous manifestations, multiple myeloma with the many abnormalities due to the abnormally high plasma globulins, even the leukemias—all became subjects for intensive studies in the pathological physiology of disease.

With the introduction of corticotropin (ACTH) into the clinic, even such a prime morphologic favorite as the eosinophil became involved in the endocrine sphere. The concept of an erythropoietic hormone was revived, and humoral regulation of the lymphoid and splenic tissue became subjects of lively discussion.

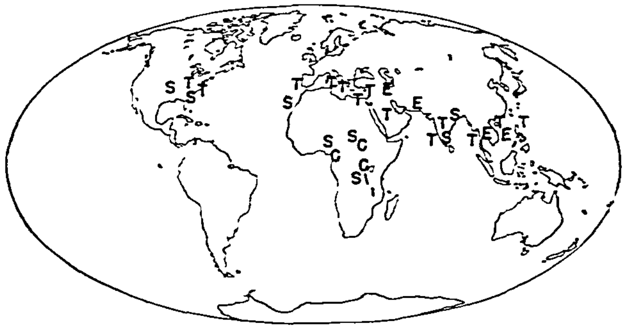

Fig. 1.—The "geohematology" of the hemoglobinopathies. T=thalassemia, S=sickle cell disease, C=hemoglobin C disease, E=hemoglobin E disease. The abnormal hemoglobins and the associated diseases are found in a broad central band of countries around the world and usually in people with some type of skin pigmentation, brown to black.

In the field of the leukemias and the white blood cell tumors (leukosarcomas), chemotherapy in the form of radiomimetic chemicals (notably nitrogen mustard) and of antimetabolites in the form of analogues of vitamins (notably the folic acid antagonists) held promise of the eventual control of these dread neoplastic conditions. Newer methods for studying the disordered blood cells, such as electron microscopy, phase microscopy, histochemistry, and time-lapse cinematography, opened up new vistas in the old field of morphology and linked the histology of the cell with its physiology. However, as newer insights into disordered function were developed, it became more and more evident that it was essential to study the actual chemical changes which took place in cells, tissues, plasma, excretions—in other words, the whole metabolism of a process, not alone its disordered physiology.

Iron, desoxyribose nucleic acid, ribonucleic acid, the various protein constituents of blood, and the coagulation factors, to mention but a few, were intensively studied. The radioactive isotopes opened up the possibility of tagging various constituents of cells and tissues. Simultaneously, the discovery by Pauling of an electrophoretic abnormality in the hemoglobin of sickle cell disease led to the discovery of all manner of "new" hemoglobins (such as C, D, E, G, H, I, and J) and to an enormous expansion in the knowledge of the "hereditary" hemoglobin disorders and of their racial and geohematological manifestations (fig. 1). It seemed that every road led to the fundamental chemical processes of the cell and its metabolic activities and to the inner mysteries of the disease itself. Morphology, physiology, therapy—all required the chemical approach.

One can distinguish thus three great eras of hematological development in the past century, actually even since 1900: (1) the era of morphology and of descriptive studies, 1856-1926; (2) the era of physiopathology, 1926 to the present; and (3) the era of chemistry, 1945 to the future. Illustrative is what has happened in hereditary spherocytosis (fig. 2). In era 1, there are the descriptions of the disease (acholuric jaundice, familial hemolytic jaundice) and of the abnormal cell involved, i. e., the spherocyte; and there are studies of the hypotonic fragility and the thickness-diameter ratio. In era 2, there are studies of the disturbed physiology: the bile pigment output, the life span of the red blood cell, the mechanism of splenic trapping, and the reasons for the remarkable effects of splenectomy. In era 3, our own, we begin to study the "why" of the spherocyte itself, its chemistry, its carbohydrate enzymatic abnormality, and even methods by which the abnormal cell might conceivably be modified. Similar thoughts hold true for sickle cell anemia (fig. 3).

Hematology in 1956 has thus become an exceedingly diverse and complex field, so much so that to few men given the ability to encompass all of it. The simple little hematology laboratory of 1920 or thereabouts has blossomed out into a state of complexity. Simultaneously, the expense of hematological investigation has risen almost perpendicularly. One sometimes wonders whether productivity has gone up at a parallel rate. To cover the expanding literature of hematology, many new journals have been founded, three in the past few months. One of them "Thrombosis et Diathesis Haemorrhagica" is the first devoted to a subspecialty of hematology.

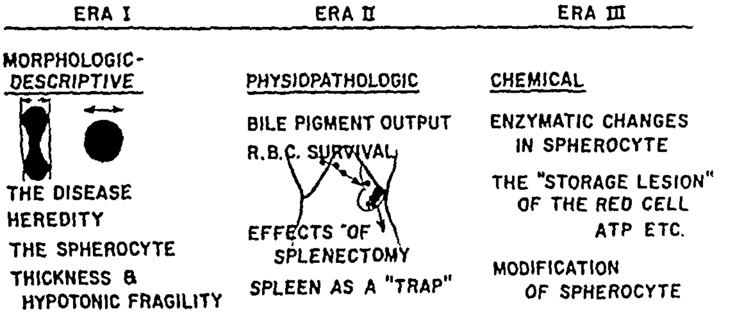

Fig. 2.—Eras of concepts concerning heredity spherocytosis in the last century.

Hematology in the Future

We have seen hematology in the past, and we have noted the present status of hematology. What is to be the future? There can of course be no doubt of the ever-increasing expansion of the field and of the division and subdivision of such fields as the coagulation disorders, immunohematology, and the hemoglobin abnormalities, to mention but a few. Soon one man will hardly be able to encompass even one fraction of one of the hematological subspecialties. This is by no means an unmixed blessing, as we note the extreme erudition of the younger group concerning a certain very small field of hematology and their relative ignorance when other fields are discussed.

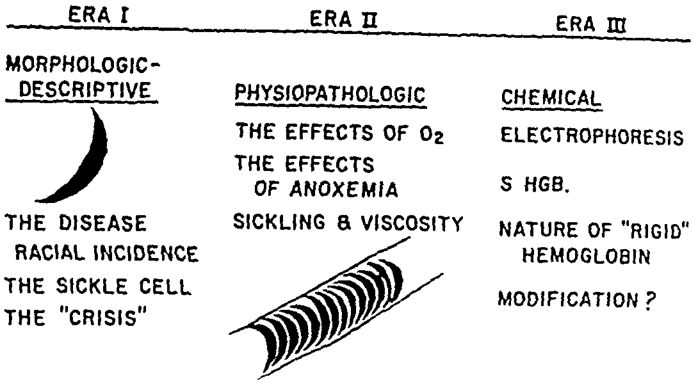

Fig. 3.—Eras of concepts concerning sickle cell disease in the last century.

What can one prophesy further? Certainly the gradual, perhaps the quick, control, as their mechanisms are worked out, of a number of now hopeless or near hopeless conditions. For example, one can with some justification predict that leukemia will be controlled; not necessarily cured, but controlled. The amazing specificity of some of the chemotherapeutic methods, the possibility of a viral etiology for at least some cases of leukemia, and therefore the possible development of methods of prophylaxis as in poliomyelitis—these are optimistic portents. Methods for bone marrow preservation and for bone marrow transfusion will almost certainly be developed. The necessity is there; the tools for preserving marrow are at hand; more work and techniques are all that are required. Bone marrow stimulants, conspicuous nowadays by their lack, will undoubtedly be found.

The chemical and enzymatic defects of the red blood cell in the hemoglobinopathies will almost certainly be discovered and perhaps then methods devised for so modifying them that the red blood cell survival will become normal. For the hemophilias, undoubtedly the deficient materials (such as antihemophilic globulin) will be concentrated and prepared for daily injection like insulin. One can speculate about the possible development of antiantibodies which could conceivably control certain cases of hemolytic anemia, leukopenia, and thrombocytopenia.

It is well to realize that, in all of these developments to come, we must be dependent not only on what we ourselves do in our own laboratories but upon the work of our colleagues in other cities, in other lands. No scientist works in a vacuum, and we rely more than we realize upon the work of many individuals, upon our contacts in meetings such as this, and upon the world's medical literature. In the nature of things, science can never be parochial.

This brings us to the last portion of this discourse. One would be remiss at an international gathering of this sort not to mention something of the political problems and their implications. Doctors, particularly hematologists, are of course a highly specialized group, but they work within the framework of society and must therefore enter into it as active participants. Gathered here is a cross section of men and women from various lands, men and women of various religions and political beliefs—a microcosm. In many cases these people have come here despite considerable difficulty, financial for the most part, political in some cases. They have come here as men of good will, intensely interested in gathering as much knowledge as possible and passing on what they themselves know to their colleagues—of whatever land and of whatever political belief. Such has been the custom of scientific groups for centuries. Our delegates have seen that their colleagues of another country, another continent, or another political belief are fundamentally the same sort of people, equally dedicated to their work as physicians, anxious to learn, anxious to teach—in other words, a great fraternity.

This is the most important lesson I myself learned on my recent world tour, part of it behind the so-called Iron Curtain. Face-to-face contacts inevitably lead to the simple but profound conclusion that people are fundamentally the same, with similar aspirations and ideals, whatever their language or their skin color. Such contacts must surely help to reduce the often artificially exaggerated differences between people of one country and another. An international gathering of this sort, and gatherings of other groups of scientists or business men or farmers or even of plain tourists, will surely break down barriers, whether iron or bamboo. This is a very important first step toward world peace and toward doing away with mankind's number one disease—war. As physicians and investigators, we need a steady "climate" of peace so that we can proceed unhindered in our studies and in the ultimate conquest of man's illnesses and man's fears. As hematologists, we must ever work to prevent useless blood loss and to conserve this most precious fluid for an increasingly healthy society.

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HEPATIC-TYPE "FLAPPING TREMOR" OCCURRING IN PATIENTS WITHOUT HEPATIC DISEASE

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and
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The alteration of consciousness and the aberrant behavior of patients with severe hepatic disease in its terminal stages have been known to clinicians for years.[1] However, not until Adams and Foley [2] reported the results of a clinical and pathological study of the neurological changes found in patients dying of cirrhosis and other hepatic diseases was the significance of the abnormalities seen in these patients widely appreciated.

As a result, clinicians now have a new sign commonly called the "liver flap" or "flapping tremor." Adams and Foley [2] describe this as follows:

Clinicians have a new sign commonly called the "liver flap" or "flapping tremor," described as a characteristic type of involuntary movement or "peculiar intermittency of sustained muscle contraction." While primarily a useful sign of impending liver failure it has also been observed in patients with uremia, polycythemia vera, severe malnutrition, and steatorrhea. In addition, the sign has been found in some patients with azotemia without hepatic disease. It is emphasized that this type of tremor although characteristic of, is not solely diagnostic of, impending or existing hepatic failure.

From the Medical College of South Carolina and Roper Hospital (Dr. Smythe) and McLeod's Infirmary (Dr. Baroody). Dr. Smythe is a Markle Scholar and Associate in Medicine at the Medical College of South Carolina.

> . . . a characteristic type of involuntary movement. This was most consistently and effectively demonstrated by having the patient hold his arms and hands outstretched with the fingers spread apart. Depending on the severity of the process, as this posture was maintained there appeared at irregular intervals of a fraction of a second to seven seconds, a series of movements consisting usually of lateral deviations of the fingers, flexion-extension of the fingers at the metacarpophalangeal joint, and flexion-extension at the wrist. The movements were rapid and arrhythmic, and one phase . . . was always more rapid than the other. They tended to occur in bursts, at a rate of every second or two.

This "peculiar intermittency of sustained muscle contraction" has emerged as a most useful sign of impending liver failure. However, Adams and Foley,[2] in their original paper, mention that they had observed it in two patients with uremia and in three with polycythemia vera. More recently Cooke[3] has described this sign in patients with severe malnutrition and in three patients with steatorrhea.

A young woman with lupus erythematosus disseminatus and moderate azotemia and a young man with hypertensive cardiovascular renal disease were observed to have gross "flapping tremor" for a period of a few days. Their cases are being reported to reemphasize Adams and Foley's original contention that this type of tremor, although characteristic of, is not diagnostic of, impending or existing hepatic failure.

Case 1.—A 34-year-old Negress was first noted to have a butterfly rash in July, 1953. Aside from chronic pelvic inflammatory disease, mild toxemia during her last pregnancy in 1948, and a doubtful serology, nothing was noted of apparent significance to her later illness during her long attendance at various clinics of the Roper Hospital. A tentative diagnosis of lupus erythematosus was made but not proved, and the patient was later considered to have seborrheic dermatitis. Four months later she developed pneumonia in the lower lobe of the left lung with pleural effusion which necessitated hospital admission. On this admission, albumin, red and white blood cells, and casts were found in the urine. A bone marrow preparation was positive for L. E. cells.

The patient did not improve satisfactorily after discharge, and readmission was necessary seven months later, in June, 1954, for pyoderma. In the interval the patient had developed asthma, and she was hypertensive, with a blood pressure of 180/100 mm. Hg. The urinary sediment was again grossly abnormal. After her discharge, repeated infections of the skin, conjunctivas, and external auditory canal plagued her. She was readmitted to the hospital in November and in December cortisone therapy was started. Her blood pressure was at a level of 170/110 mm. Hg. In the days before admission, she had noted that her rash had become more papular. After an episode of gross hematuria, her temperature was 103 F (39.4 C), and she was admitted with a diagnosis of bilateral pneumonitis. Physical examination revealed an obese moon-faced woman in considerable respiratory distress. There was hyperpigmented papular rash over the bridge of her nose and cheeks. Her temperature was 100.4 F (38 C), pulse rate 120 per minute, respirations 22 per minute, and blood pressure 140/100 mm. Hg. The heart was slightly enlarged and, except for sinus tachycardia, was otherwise not remarkable. Dulness to percussion was found over the left lower lung field, and fine rales and expiratory wheezes were heard at the bases of both lungs. The liver was palpable at the right costal margin and was tender. The area of hepatic dulness was not increased. There was generalized abdominal tenderness. Laboratory data for this case are summarized in the table.

On her fourth hospital day the patient developed acute respiratory distress with severe pleuritic pain on the left side and signs of acute left-ventricular failure. Her temperature was 104.2 F (40.1 C). She began to cough pink sputum in which pneumococci were seen (later cultured) on Gram staining. She was thought to have pneumococcic pneumonia of the lower lobe of the left lung and acute pulmonary edema. She responded to intravenously given lanatoside C and tetracycline. Pleural effusion later appeared on the left and the liquid was aspirated.

After this acute episode the patient improved. On the morning of Nov. 18, or four days after the acute episode and eight days after admission, it was noted that she had developed a spontaneous arrhythmic tremor of her hands. This was accentuated when the arms were extended and involved primarily the fingers and wrists. The flexor phase of the tremor was more rapid than the extensor. The patient was quite alert and was well aware of the jerking, which she could not control. The tremor was much worse in the morning and tended to decline as the day progressed. At the time the tremor was first noted, the patient was receiving prednisone, 25 mg. every six hours; tetracycline, 200 mg. every six hours intramuscularly; sulfisoxazole (Gantrisin), 1 Gm. every six hours by mouth; aminophylline suppositories; 0.5 Gm. every four hours; digitalis, 0.1 Gm. daily; phenobarbital sodium, 30 mg. every six hours; and codeine, 30 mg. every four hours, principally for pain. When the tremor was noted, the prednisone dosage was cut to 15 mg. every six hours and the use of the barbiturate was discontinued.

Laboratory Data for Case 1

Date, 1955	Nov. 12	Nov. 20	Nov. 21	Nov. 28	Dec. 2	Dec. 5
Leukocytes, thousands/cu. mm.	34.5	23.7			9.2	
Hemoglobin, Gm./100 cc.	12.5	11.5			10.5	
Urinary specific gravity	1.012		1.020		1.018	
Urinary albumin	4+		3+		3+	
Leukocytes, high-power field	20-30		50		300	
Erythrocytes, high-power field	1-2		10-15		10-15	
Blood urea nitrogen, mg./100 cc.	18	126	63	29		24
Blood sodium, mEq./liter	140	138	140	135		139
Blood potassium, mEq./liter	4.5	7.5	6.2	5.1		4.6
Carbon dioxide, vol. %	38		40			46
Calcium, mg./100 cc.			8.7			7.5
Phosphorus, mg./100 cc.			10.4			5.4
Total protein, Gm./100 cc.	6.79					
Globulin, Gm./100 cc.	3.66					
Alkaline phosphatase, King-Armstrong units/100 cc.		9.6				
Sulfobromophthalein retention, %			0			
Cephalin-cholesterol flocculation		Negative				
Prothrombin time, %			100			

The next day the tremor was still present, and the day after that it was at its height. On this day the patient had difficulty holding a glass, but she was able to walk, although unsteadily because of weakness. At no time were abnormalities of reflexes or muscle tone noted. An electroencephalogram was not made. Blood-chemistry findings at this time are noteworthy for a blood urea nitrogen level of 126 mg. per 100 cc. (63 mg. the next day), a calcium level of 8.7 mg. per 100 cc., and a phosphorus level of 10.4 mg. per 100 cc. All hepatic-function tests were within normal limits (see table). The liver was not enlarged, and there was minimal tenderness in the right upper quadrant. There was no icterus. Four days after the tremor appeared, it began to decline, never to reappear. The patient is progressing fairly well, without azotemia at present, on therapy with 20 mg. of prednisone a day.

Case 2.—A 33-year-old Negro man was admitted to McLeod's Infirmary, Florence, S. C., on Jan. 4, 1956, complaining of epigastric pain of one week's duration. He had vomited intermittently for two to three days prior to admission and during the same time had noticed the onset of a nonproductive cough. He gave a history of hypertension, which had previously been asymptomatic.

On physical examination he was found to be a well-developed, well-nourished male, complaining of abdominal pain. His temperature was 98.6 F (37 C), pulse rate 88 per minute, respirations 22 per minute, and blood pressure 260/140 mm. Hg. Examination of the eyes revealed pale fundi with severe arteriovenous nicking and an arteriovenous ratio of 1:4. The chest was symmetrical, and the lungs were clear to percussion and auscultation. The heart was enlarged to the sixth intercostal space at the anterior axillary line. The border of the left side of the heart was percussed 3 cm. lateral to the midclavicular line. The rhythm was normal, and the aortic second sound was louder than the pulmonic second sound. There was a soft blowing systolic murmur at the apex. Examination of the abdomen revealed epigastric tenderness. The liver was not enlarged and the spleen could not be felt. There was no costovertebral tenderness. The examination otherwise showed results within normal limits.

The laboratory data were as follows: erythrocyte count 3,350,000 per cubic millimeter, hemoglobin level 11.5 Gm. per 100 cc. (69%), leukocyte count 13,600 per cubic millimeter, polymorphonuclear leukocytes 71%, lymphocytes 13%, monocytes 4%, and eosinophils 2%; there was slight poikilocytosis. Urinalysis showed a specific gravity of 1.010, a pH of 7.0, albumin 2+, and sugar negative. There were 2 to 3 leukocytes per high-power field, innumerable erythrocytes, pinkish amber color, and no casts. The serologic test for syphilis was negative. The blood urea nitrogen level was 68 mg. per 100 cc., and the serum amylase level was 72 units. Sickle-cell preparation revealed no immediate sickling, 60% sickling in 24 hours, and 100% in 48 hours. An electrocardiogram was interpreted as indicating sinus tachycardia, left-axis deviation, left-ventricular hypertrophy, and coronary insufficiency. A roentgenogram of the chest revealed cardiac enlargement. Diagnoses of hypertensive cardiovascular renal disease with probable chronic glomerulonephritis, azotemia, sicklemia, and gastritis were made.

The patient was given atropine sulfate, 0.6 mg. every four hours; aluminum hydroxide (Amphogel), 8 cc. every eight hours; magnesium sulfate, 4 cc. intramuscularly every six hours for four doses; and phenobarbital, 30 mg. every eight hours. He was put on a low-salt diet and given 0.4 mg. of digitoxin every eight hours for three doses, then 0.1 mg. daily. His urinary output was good. Fluids were given ad libitum. He was then given 40 mg. of pentolinium tartrate every eight hours. By the fourth hospital day, the blood pressure had dropped to 190/90 mm. Hg and the patient complained of syncope on standing, although he seemed generally improved. Pentolinium dosage was reduced to 20 mg. every eight hours. By the seventh day, the blood pressure once again rose to 240/140 mm. Hg and intractable singultus was noted, for which 25 mg. of chlorpromazine was given every three hours, with little benefit. By the eighth hospital day the blood urea nitrogen level had risen to 117 mg. per 100 cc., singultus continued, and the patient was somewhat lethargic. The blood pressure remained elevated, and the pentolinium dosage was increased to 100 mg. every eight hours. On the ninth hospital day, the blood pressure was 236/140 mm. Hg. The specific gravity of the urine on three separate occasions was 1.010. On the 10th hospital day pentolinium dosage was increased to 200 mg. at 8 a. m., 100 mg. at 2 p. m., and 200 mg. at 8 p. m. The following day there was a drop in blood pressure to 180/110 mm. Hg. On this day, it was noted that the patient's lethargy was somewhat increased and that he had a definite "flapping tremor" when the arms were extended. The flexion-extension tremor involved the fingers, wrists and hands, and infrequently the entire arm. He could answer questions in a logical manner, but his speech was slurred and his responses were extremely slow and delayed. If undisturbed for a few minutes he would fall asleep. Neurological examination at this time revealed intact cranial nerve function and normal deep-tendon reflexes. No abnormal reflexes were observed. No electroencephalogram was taken. By the 12th hospital day the blood pressure reached 200/120 mm. Hg and the patient seemed more alert. The tremor was no longer demonstrable. Singultus was noted only at irregular intervals and the patient appeared to be completely clear mentally. The blood urea nitrogen level was 81.6 mg. per 100 cc. the next day, and the total serum bilirubin level was 0.43 mg. per 100 cc. Cephalin flocculation was 2+ in 24 hours and 4+ in 48 hours. This was considered to be consistent with the sicklemia. The patient was alert and cheerful and took food and fluids well. For the next five days, his consciousness varied from alertness to mild lethargy, at which time he would answer questions logically but in a sluggish manner. The tremor was not subsequently demonstrated. The blood urea nitrogen level on the 18th hospital day was 71.6 mg. per 100 cc. The patient remained alert, ambulatory, and asymptomatic, except for slight postural dizziness, until discharge on the 20th hospital day.

On Feb. 22, 1956, the patient was readmitted with recurrence of abdominal pain, nausea, and vomiting. He had discontinued taking digitalis and presented recurrent symptoms of of orthopnea, dyspnea, and edema. On physical examination the blood pressure was 190/130 mm. Hg and there were scattered moist basilar rales in both lungs. The heart was enlarged and the apex was in the sixth intercostal space at the anterior axillary line. The abdomen was soft and flat and there was moderate midepigastric tenderness. The liver was slightly tender and the lower edge was palpated at the right costal margin. There was 2+ pitting edema of both lower extremities, and diagnoses of malignant nephrosclerosis with hypertensive cardiovascular disease and congestive heart failure were made. The blood urea nitrogen level was 130 mg. per 100 cc. and the hemoglobin level had dropped to 5 Gm. per 100 cc. For the next five days his condition was poor. He developed urinary retention and on several occasions catheterization was necessary. Nausea and vomiting continued. On the fifth hospital day he became irrational and confused. He died on the seventh hospital day.

At autopsy, the final anatomic diagnoses were (1) marked generalized arteriosclerosis, (2) marked cardiac hypertrophy (cor bovinum), (3) arteriolar nephrosclerosis, (4) focal myocarditis, (5) acute and chronic pancreatitis, (6) congestion of viscera, and (7) lipoma of the left adrenal gland.

Comment

These are complex cases. It is, however, fair to say that neither patient had clinically apparent hepatic disease and that there was little evidence of hepatic dysfunction. The first patient had lupus erythematosus with findings indicative of renal injury and evidence of lowered resistance to infection. The second had renal failure on the basis of nephrosclerosis. At the time of the episode of "flapping tremor" both patients were markedly azotemic, and it was thought that death from uremia would rapidly ensue in each instance. However, those who observed the tremors in these cases felt that these were not the extensor twitches or spasms or jactitations of uremia but true flexion-extension tremors identical with those seen in patients with hepatic failure. They were not caused by simple loss of muscle strength. It is of interest to note that, in the first patient, after the dosage of prednisone (which had been increased with the idea that it might control the apparently increasing renal damage) was reduced and then omitted, the kidney status improved rapidly. The same sequence with pentolinium tartrate occurred in the second patient. It should also be mentioned that the first patient was having considerable respiratory distress at the time of the occurrence of the tremor. Although arterial oxygen saturation was not measured, the patient was not clinically cyanotic. Bessman and Evans[4] have noted elevated blood ammonia concentrations in chronic congestive failure.

In the past few years the major investigative effort on the pathogenesis of hepatic coma has been directed at determining the exact role of ammonia and at elucidating the disorder of its metabolism seen in such patients. Although probably not the only factor, retention of ammonia is recognized as being closely related to the clinical picture of hepatic coma.[5] However, the severity of the neurological disturbance has not been found to correlate too closely with peripheral venous levels of blood ammonia.[6] Webster[7] has postulated that the cerebral production, and therefore the ammonia content, of jugular venous blood may be a determining factor. The severity of the neurological disturbance has also been found to correlate most closely with the arterial blood ammonia level.[8] Most of these investigations have been concerned largely with the alteration of consciousness. Whether the tremor is related to the same metabolic derangements as the stupor is not definitely known, but probably it is related. The close resemblance of the tremor to other neuromuscular disorders arising from disease of the basal ganglions and the description of astrocytic abnormalities in this portion of the brain[2] are evidence of a special sensitivity of the cells of this area to the abnormal metabolic processes involved.

Adams,[2] Davidson,[9] and Bessman[6] have observed that persons with uremia demonstrate a typical "flap." Bessman[8] has reported on blood ammonia levels in four persons (part of his comatose control group) with uremia. All levels were within the normal range. It has been pointed out that this is to be expected, since, in part, ammonia levels depend on renal production, and in uremia this source is markedly curtailed.[5] Moreover, since many feel that high blood ammonia levels in persons with cirrhosis are almost totally dependent upon escape of the ammonia in the general circulation via collateral channels bypassing hepatic parenchyma,[10] one would not expect a high ammonia blood level in persons with uremia, without liver disease, and in whom no such collateral circulation exists. No description of ammonia retention in patients with uremia has been found. Therefore, the patients in our study, having intact liver function and absence of an extensive collateral circulation, may be assumed to have had normal ammonia levels, although it cannot be concluded definitely that there was no ammonia retention without actual measurements. This leads to the conclusion that the tremor of hepatic coma may not be due solely to ammonia retention and that the neurological disorder seen in these patients probably had other contributing causes.

Summary

A "flapping tremor" occurred in two patients who had azotemia but not hepatic disease. Both patients recovered from the episodes of renal failure. One patient subsequently died, and at autopsy the liver was found to be essentially normal.

Addendum

The first patient has subsequently died. At autopsy there was no liver disease. The kidneys showed extensive changes consistent with a diagnosis of lupus erythematosus.

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Sudden Deafness.—A study was made of 178 cases of sudden deafness of obscure cause encountered in a five-year period, 1949 to 1953, inclusive. In 89 cases the deafness seemed to be due to a vascular accident. In 56 it seemed to be due to Ménière's disease. In 17 the cause could not be determined. In 15 it was due to miscellaneous causes usually of infectious origin. In one case the deafness was thought to be due to hysteria or malingering. The literature, pathology, etiology, diagnostic factors and other pertinent data were considered in some detail. Because of the absence of specific information as to the underlying pathology, the diagnosis as to etiology has to be somewhat tentative; however, in most of the cases studied, repeated and extensive examinations permitted a statement as to etiology which is considered fairly authoritative.—O. E. Hallberg, M. D., Sudden Deafness of Obscure Origin, *The Laryngoscope*, October, 1956.

SERUM LACTIC DEHYDROGENASE—A DIAGNOSTIC AID IN MYOCARDIAL INFARCTION

Roderick P. MacDonald, Ph.D., John R. Simpson, M.D.
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The usefulness of specific enzyme reactions to clinical medicine is becoming increasingly more apparent. Patients suffering destruction of various tissue cells have increased enzymatic activity in their serum. The enzymes normally present within the cells are liberated into the blood stream as cell destruction occurs. The determination of serum lactic dehydrogenase (LDH) as an aid in the diagnosis of acute myocardial infarction has two advantages: first the increased elevation is present for as long as six to eight days after attack; second, the technical procedure is far less complicated than other enzyme tests. LDH determination, not ordinarily necessary in the diagnosis of acute myocardial infarction, is particularly helpful when the electrocardiograph pattern masks the recent changes of an acute infarction.

Abnormally elevated serum enzyme levels resulting from tissue destruction are assuming increasing importance as diagnostic procedures. The discovery that glutamic oxaloacetic transaminase is released from cardiac tissue during myocardial infarction [1] led to a search for other enzymes which might behave similarly. Wróblewski and LaDue [2] noted the presence of lactic dehydrogenase (LDH) in serum and subsequently demonstrated its elevation after acute transmural myocardial infarction. Hill and Levi [3] previously reported finding an elevated level of a serum component in neoplastic disease which they believed to be lactic dehydrogenase. Others [4] have reported LDH elevations in various other disorders.

The present report describes the method of analysis for LDH and presents the findings in 174 hospital patients representing many different pathological conditions.

Method

Methods for the assay of LDH are usually based upon the oxidation or reduction of diphosphopyridine nucleotide (DPN) or reduced diphosphopyridine nucleotide (DPNH). These reactions are coupled with the conversion of lactic acid to pyruvic acid or vice versa. Maximum reduction by LDH occurs when pyruvic acid forms lactic acid. DPNH in this case furnishes the proton required for the reaction and is consequently oxidized to DPN. This is the principle of the procedure used in this study.

The method is essentially that of Wróblewski and LaDue.[2a] It has been modified by dilution of the serum when an appreciable drop in the rate of DPNH oxidation occurs during the period of measurement.

To 2.4 ml. of phosphate buffer (pH 7.4) add 0.1 ml. of serum and 0.1 ml. of DPNH (2.5 mg. per milliliter in water, made basic to pH 9.0 with sodium hydroxide). Allow to stand 20 minutes, then add 0.1 ml. of sodium pyruvate (2.5 mg. per milliliter). The optical density of the solution is then read every 15 seconds for 5 minutes at 340 mμ in a Beckman DU spectrophotometer. If the optical density decreases at an accelerating rate for each time interval, dilute an aliquot of the original serum with phosphate buffer and repeat the procedure using the original amounts of all constituents. Appropriate dilutions are indicated by the first minute readings: 1:3 if over 1,000, 1:4 if over 1,500, or 1:5 if over 2,000 units. Further dilution may be necessary if the LDH activity is extremely high. The rate of decrease of optical density is taken as a measure of LDH activity expressed as units per milliliter of serum per minute. One unit equals a decrease in optical density of 0.001 per minute per milliliter under the above conditions. Any dilution must also be considered in the calculation of the final value.

The 20-minute time interval after addition of the DPNH is required to permit the reduction of alpha-keto and alpha, gamma-diketo acids initially present in the serum. This reaction stops when the keto and diketo acids are enzymatically reduced to lactate by the added DPNH.

No specific dilution factor can be given since this will depend upon the LDH activity of the serum and the assay of the DPNH preparation used, for the latter may vary from one lot to another. Insufficient quantities of DPNH will be indicated by a decreasing rate of reaction. Serum dilution decreases the LDH activity to a known degree, thus making the amount of DPNH adequate for the reaction. If the rate of reaction is not periodically followed, an inadequate DPNH activity will not be apparent. Methods which measure optical density initially and after a specified time interval will give lower values than those obtained by the technique described above, especially if LDH activity is very high.

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In the past few years the major investigative effort on the pathogenesis of hepatic coma has been directed at determining the exact role of ammonia and at elucidating the disorder of its metabolism seen in such patients. Although probably not the only factor, retention of ammonia is recognized as being closely related to the clinical picture of hepatic coma.[5] However, the severity of the neurological disturbance has not been found to correlate too closely with peripheral venous levels of blood ammonia.[6] Webster[7] has postulated that the cerebral production, and therefore the ammonia content, of jugular venous blood may be a determining factor. The severity of the neurological disturbance has also been found to correlate most closely with the arterial blood ammonia level.[8] Most of these investigations have been concerned largely with the alteration of consciousness. Whether the tremor is related to the same metabolic derangements as the stupor is not definitely known, but probably it is related. The close resemblance of the tremor to other neuromuscular disorders arising from disease of the basal ganglions and the description of astrocytic abnormalities in this portion of the brain[2] are evidence of a special sensitivity of the cells of this area to the abnormal metabolic processes involved.

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The time of onset of the attack leading to myocardial infarction was established in 38 patients. This was based primarily on the appearance of characteristic retrosternal pain, collapse, shock, or various arrhythmias. Such timing was not possible in six patients.

Serial determinations of LDH activity were obtained daily in many patients. Rise in LDH level in response to myocardial infarction began on the first day. Maximum levels were usually reached on the 2nd or 3rd day and slowly declined to normal by the 6th to 11th day. This trend is illustrated in figure 1, which utilizes LDH determinations in patients with definitely established onset.

A delay in return of LDH level to normal, or a secondary rise, implied extension of the infarction and often a much poorer prognosis. The LDH level of patient F. C. shown in figure 2 is illustrative. This woman died after 10 consecutive days of LDH elevation above 900 units. Extreme elevations (above 2,000 units) did not prove prognostically significant. Three patients with levels of 4,000, 2,950, and 2,960 units died, but two others with levels of 2,250 and 2,650 units had uncomplicated clinical courses. No correlation was attempted between the size of infarct at autopsy and the degree of LDH elevation. Fifteen patients died during the period of study for a mortality rate of 34%. Four hearts were studied at autopsy and all showed definite evidence of acute transmural myocardial infarction.

Infarction Suspects.—In 29 patients (19 males, 10 females, aged 39 to 74) recent myocardial infarction was suspected but not definitely established by initial studies. Thirteen of these had suffered previous myocardial infarction from two weeks to five years earlier. After careful and intensive study these 29 patients were finally given diagnoses as follows: angina pectoris, 8; coronary insufficiency, 15; and myocardial infarction, 6. There were no deaths during the period of study. All of the eight patients with angina had normal LDH levels.

Of the 15 patients with coronary insufficiency 10 had had a previous myocardial infarction and their electrocardiograms showed patterns of old myocardial infarctions that could have masked recent changes. In 7 of these 10 the LDH levels were normal while in the remaining 3 they were maximally elevated to levels of 545, 555, and 595 units. Actual myocardial necrosis probably occurred in these three patients.

In the remaining five without previous infarction, the electrocardiograms showed patterns of ischemia in all. Three of these had normal LDH levels but in the other two the levels were elevated to slightly over 400 units, probably due to small areas of subendocardial necrosis.

In the last group of six patients conclusive electrocardiographic evidence of infarction was lacking. Masking patterns of bundle-branch block and old infarction were present in five while in the sixth minor changes in lead AVL suggested lateral infarction. LDH levels in this group were slightly to moderately elevated (410 to 700 units). The lesser elevations (410 and 460 units) were found in the two patients with bundle-branch block. LDH levels in the three patients with old infarction were 615, 700, and 540 units. The man with the lateral infarction had his maximum LDH elevation (500 units) 36 hours after onset of pain. In this group, as in the previous ones, LDH elevations seemed to correlate with the presence of necrotic myocardial tissue.

Congestive Failure.—Of 12 patients admitted primarily for treatment of congestive heart failure, 4 had elevated LDH levels and 3 of these were above 600 units. The LDH level was 605 units in a woman with left bundle-branch block due to arteriosclerotic heart disease. A man with rheumatic heart disease and atrial fibrillation had an LDH level of 390 units. His ECG also showed nonspecific myocardial damage. Another man with rheumatic heart disease and atrial fibrillation had an LDH level of 775 units and an ECG which showed subendocardial ischemia. He died while in the hospital, but there was no autopsy. The fourth elevation occurred in a man with secondary polycythemia due to decompensated arteriosclerotic heart disease. His LDH level was 630 units on the day after admission and 340 units two days later. Two electrocardiograms showed severe diffuse myocardial damage and changes suggestive of lateral infarction. LDH elevation in these four patients may have been due to actual myocardial necrosis but final pathological proof was not available.

Pericarditis.—The diagnosis of pericarditis was established by clinical observation and electrocardiographic changes in four patients. In two the disease was felt to be of tuberculous origin, while in the other two no definite etiology could be proved. LDH levels were elevated (530 and 505 units) in the two patients with tuberculous pericarditis. Pericardicentesis was performed on both these patients and LDH levels were determined on the pericardial fluid. The LDH levels (530 and 570 units) approximated those of serum.

One patient with idiopathic pericarditis had consistently normal LDH levels while the other patient showed a transient elevation. LDH levels in the latter varied from 440 units when first studied to a maximum level of 640 units five days later, at the height of clinical disease. Fifteen days later the level had returned to normal.

The LDH activity of normal pericardial fluid has never been recorded, but it seems valid to assume that it would approximate that of serum. The most likely explanation for the increased LDH activity would be destruction of cells in the epicardial layer of the myocardium. Such destruction probably took place in the three patients with elevated LDH levels.

Liver Disease.—Twelve patients with primary liver disease were studied. Of six patients with viral hepatitis the LDH level was elevated in four studied during the acute stage. The highest level was 1,370

Hemolysis must be carefully avoided since the LDH activity of whole blood hemolysates is approximately 100 times that of serum.[28] Any perceptible hemolysis will give falsely elevated results. The serum may be stored at 4 C (40 F) for 3 days or frozen for 10 days.[3] Slightly lipemic or icteric serum may be used for the determination.[3]

The serum LDH activity in 40 normal adults selected from hospital personnel (20 males and 20 females, aged 20 to 64) varied from 165 to 332 units, with a mean of 247 units. Standard deviation for this series was 33 units. The mean ±2 standard deviation units (sigma) should include 95% of the values in the series (95% confidence limits of a normal distribution). Only one subject was found to have a serum LDH level above this (332 units). Therefore the normal range of LDH activity is below 313 units when determined by the above procedure.

Summary of Conditions Studied and Elevated LDH Levels

Disease	No. of Patients		LDH Elevations: Above Normal	LDH Elevations: Above 500 Units
Heart disease	94			
Angina pectoris		13	0	0
Myocardial infarction		50	50	44
Coronary insufficiency		15	5	3
Congestive failure		12	4	3
Pericarditis				
Tuberculous		2	2	2
Idiopathic		2	1	1
Liver disease	12			
Viral hepatitis		6	5	4
Laennec's cirrhosis		5	1	1
Traumatic necrosis		1	1	1
Pulmonary disease	8			
Pneumonia, lobar		4	2	0
Infarction		2	1	0
Lung abscess		1	0	0
Necrosis		1	0	0
Cerebral vascular accidents	11		11	3
Diabetes mellitus	7		3	0
Malignant disease	13			
Lymphomas		5	4	1
Multiple myeloma		2	1	1
Metastatic carcinoma		4	4	2
Sarcoma		1	0	0
Myelogenous leukemia		1	0	0
Hematological disease	5			
Sickle cell anemia		3	3	3
Hemolytic crisis		1	1	1
Infectious mononucleosis		1	1	1
Miscellaneous diseases	19		7	0
Pregnancy	5		1	0
Totals	174		108	71

Clinical Studies

Clinical material consisted of 174 hospitalized patients, 94 with organic heart disease. Seventy-eight patients were suffering from coronary artery disease. In addition to frequent clinical observation, cardiac patients were studied by serial determinations of white blood cell count (WBC), erythrocyte sedimentation rate (ESR) by the Westergren method, 12-lead electrocardiogram (ECG), and LDH levels. Many other conditions were also studied, especially those considered in the differential diagnosis of acute myocardial infarction.

A tabulation of the conditions studied and the number with LDH levels above normal and above 500 units is shown in the table. Patients are grouped according to clinical diagnosis at the time of leaving the hospital.

Angina.—Of the 13 patients with angina pectoris, 5 were not suspected of having myocardial infarction. All five had essentially normal WBC, ESR, and ECG tests that in no way suggested or masked myocardial infarction. The LDH levels were normal in all. These results compare favorably with those of others who have demonstrated normal serum enzyme levels in the absence of myocardial tissue destruction.

Myocardial Infarction.—In 44 patients (37 males and 7 females aged 43 to 83) the diagnosis of acute myocardial infarction was definitely established by clinical, electrocardiographic, and/or postmortem pathological studies. The infarction was considered transmural in all. Six additional patients in whom the diagnosis of infarction was in doubt were considered separately as infarction suspects.

LDH levels were elevated in all 44 patients and above 500 units in 39 patients. The lesser degrees of elevation occurred under the following circumstances: Two patients whose single LDH levels of 320 and 380 units were determined 12 and 18 hours after onset of the attack died shortly thereafter. One patient, studied only on the first day, had an LDH level of 340 units. Definite onset time could not be established in another patient whose top level was 400 units. An elderly woman who suffered cerebral thrombosis at the time of coronary thrombosis had a maximum value of 495 units on the sixth day.

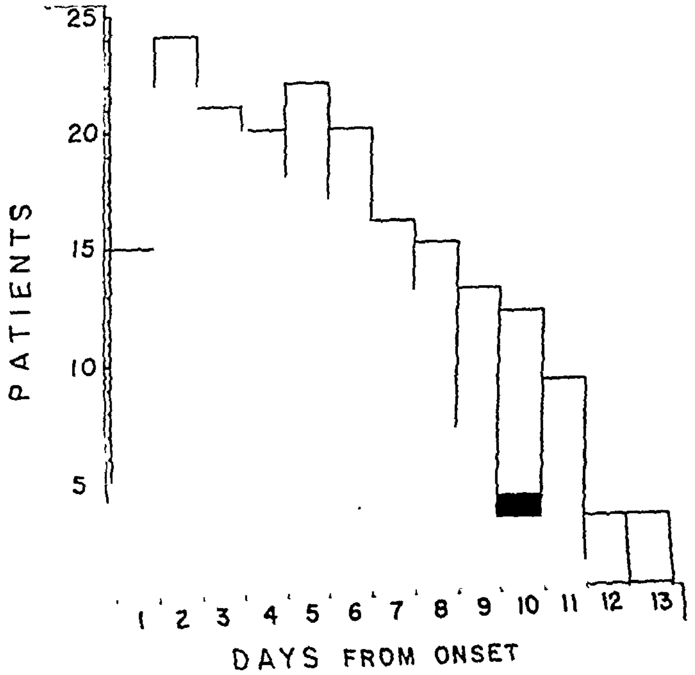

Fig. 1.—Significant elevations of LDH levels after acute transmural myocardial infarction. Total height of bar equals number of determinations. Shaded area denotes number of determinations above 500 LDH units.

destruction of various tissue cells. The enzymes normally present within the cells are liberated into the blood stream as cell destruction occurs. The degree of elevation of the particular enzyme under study depends on three factors: (1) the concentration of the enzyme within the cell; (2) the amount of tissue or the number of cells actually destroyed; and (3) the accessibility of the products of destruction to the systemic circulation where the measurement is actually made. These increased levels persist for varying periods after the destruction takes place, depending upon which tissue and which enzyme is involved. Although the enzyme determinations currently being employed reflect nonspecifically the response to destruction of several different tissue cells containing the same enzymes, such determinations yield useful information in many clinical situations. Probably the widest application of this principle to date has been the utilization of glutamic oxaloacetic transaminase as an adjunct in the diagnosis of acute myocardial infarction.[6] Other enzymes (hexose isomerase, lactic dehydrogenase, malic dehydrogenase, and aldolase) have also been used for this purpose.[4b] Glutamic oxaloacetic transaminase,[5e] glutamic pyruvic transaminase,[5f] and aldolase[7] have all been employed by various investigators in studying liver disease. The increasing usefulness of the application of these specific enzyme reactions to clinical medicine is becoming increasingly more apparent.

The results reported here demonstrate the value of LDH determinations as an aid in the diagnosis of acute myocardial infarction. To justify the use of this test there should be certain advantages over those methods currently more widely employed for the same purpose. We feel that such advantages do exist and that the most important one is the prolonged elevation that occurs after mycardial infarction. In a significant number this elevation will be present for as long as six to eight days after attack. This is distinctly helpful in those patients with less severe attacks of myocardial infarction who present themselves several days after the initial attack of pain. Another advantage is the less complicated technical procedure. The method is technically easier, requires fewer reagents, and less frequent determinations are necessary than with the transaminase test. The modified procedure herein described gives accurate values at any level of LDH activity.

Determinations of LDH, although confirmatory, are not ordinarily necessary in the diagnosis of acute myocardial infarction. However, there are situations in which they are distinctly helpful, particularly when the electrocardiographic pattern masks the recent changes of an acute infarction. This occurs not infrequently when bundle-branch block has developed and when patients have had previous myocardial infarction.

In following the course of a patient with recent infarction, a secondary rise in LDH level may indicate extension of the infarct when there are no additional changes electrocardiographically. Another situation in which LDH determinations may prove helpful is in patients with electrocardiograms that present prominent ST interval and T-wave changes without significant Q waves. Although such changes may simply reflect myocardial ischemia, they may also indicate actual necrosis, in either the subepicardial or the subendocardial layers of the myocardium. Under these circumstances an elevated LDH level would indicate actual tissue destruction rather than the less serious ischemia. The extent of LDH elevation in these situations however is usually less than that found with acute transmural myocardial infarction. The significant elevation in our series of patients with transmural infarction was a level above 500 units, which occurred in 39 of 44 patients (88.6%).

The determination of LDH levels may also be useful in the differential diagnosis of acute pain in the chest or upper part of the abdomen. Many acute conditions to be differentiated from acute myocardial infarction have normal LDH levels, e. g., acute cholecystitis, perforated peptic ulcer, pneumonia, pulmonary embolism, and pulmonary infarction. It is admitted that several other diseases (see table) may cause elevation of LDH levels, but these are generally not confused with acute myocardial infarction. The one exception is when coronary thrombosis with resultant myocardial infarction produces a shock-like state that leads to cerebral thrombosis. Both conditions produce significant degrees of LDH elevation, but in the latter condition it is usually less marked. Such a sequence of events occurred in one of our patients.

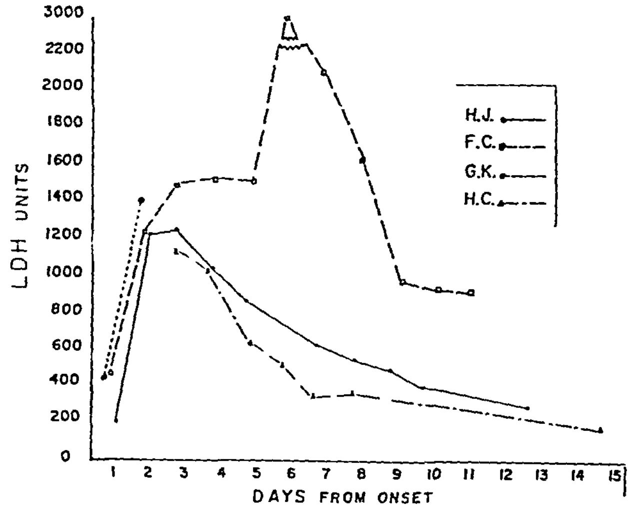

Fig. 2.–Characteristic responses of serum LDH levels after acute transmural myocardial infarction.

The various patterns of response reflected by serial LDH determinations are shown in figure 2. The usual response of rise and fall in an uncomplicated case is demonstrated by patient H. J. The prompt rise followed by death on the second day is shown in patient G. K. A stormy course terminating in death on the

11th hospital day is reflected in the determinations on patient F. C. Patient H. C., whose first LDH level was determined on the third day, showed the gradual decline that accompanies a very uneventful clinical recovery.

Other investigators[8] have reported elevated LDH levels in many clinical disorders in addition to myocardial infarction, such as hepatocellular necrosis, metastatic carcinoma, diabetic acidosis, leukemia, megaloblastic and sickle cell anemia, thrombocytopenia, malignant lymphoma, infectious mononucleosis, cerebral infarction and/or hemorrhage, and rheumatoid arthritis. In our studies elevations were also found in most of these conditions, with the exception of rheumatoid arthritis. We found in addition that the LDH level is elevated in acute hemolytic crisis.

These same authors[9] found many conditions associated with normal LDH levels. Included were acute and chronic infectious diseases, pulmonary infarction, localized neoplastic disease, diabetes, peptic ulcer, pancreatitis, cholecystitis, chronic nephritis and uremia, cirrhosis, fractures, myxedema, hyperthyroidism, and arterial thrombosis with gangrene of the leg. This was also true after minor surgery. Patients with heart disease without myocardial infarction usually had normal LDH levels. Our finding of essentially normal LDH levels in pregnant women is in disagreement with others.[3]

Wróblewski[2b] presented two patients in congestive failure with elevated LDH levels but without additional evidence of myocardial infarction. In our group of patients with congestive failure there were four with elevated LDH levels. It was our impression that actual infarction may have been present, but we had no pathological material to support this belief. Further investigation is required to settle this issue.

Although less attention has been focused on the value of LDH levels in other conditions, limited application has been attempted in the field of malignancy.[10] The only conclusion our material permits is the generalization that the degree of LDH elevation in malignant disease appears related to the extent of metastases.

At present it appears that LDH determinations are most useful in the diagnosis of coronary artery disease. In suspected myocardial infarction the serum LDH levels may make possible the diagnosis when all other methods have failed.

Summary

A modified method has been described for the determination of serum lactic dehydrogenase (LDH) activity. Elevations of serum LDH were found in myocardial infarction, hepatocellular necrosis, metastatic carcinoma, diabetic ketosis, sickle cell anemia, malignant lymphoma, infectious mononucleosis, and cerebral infarction. The response of LDH levels to myocardial infarction has been described.

This determination is especially useful when the electrocardiographic pattern is masked or when complications occur after myocardial infarction. It often helps to distinguish between ischemia and actual infarction and to differentiate conditions sometimes confused with myocardial infarction. The determination of LDH levels should therefore become a useful laboratory adjunct in the diagnosis of coronary artery disease.

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8. Footnotes 2*b*, 3, and 4*a* and *f*.

9. Footnotes 2*b*, 3, and 4*a*.

10. Footnotes 3 and 4*d* and *e*.

CLINICAL NOTES

POSTOPERATIVE ACUTE ADRENAL CORTICAL INSUFFICIENCY

Ralph Adams, M.D.
and
Norman Siderius, M.D., Wolfeboro, N. H.

Until recently, it was common practice in the management of severe postoperative shock for surgeons to use adrenal cortical extracts in the hope that a lack of these substances might be an etiological or contributing factor in the production of shock.[1] A combination of two factors has been responsible for the common failure of such an approach: first, the relative rarity of adrenal cortical insufficiency in the etiology of shock, and, second, administration of inadequate doses of hormones. Knowledge of the physiology of adrenal insufficiency gained during the last five years has made it possible to base corticosteroid therapy on a firmer foundation.[2] Also, the concept of stress stemming from the extensive work of Selye [3] has helped to reveal the importance of the adrenal cortex in the body's response to a host of stressful situations, including major or minor surgery. Much has been learned from the study of patients with adrenal cortical hypofunction (Addison's disease) and patients who have undergone bilateral adrenalectomy.[2b] Modern replacement therapy allows one to operate on such patients with relative safety.[4] Now that it is possible to treat the patient with adrenal cortical insufficiency successfully, it becomes urgent to recognize the clinical condition when it exists.

We have encountered five cases of postoperative shock in which the diagnosis of adrenal insufficiency seems justified. There was no clinical reason to suspect a deficiency of adrenal function preoperatively in any one of these five cases. One of these is presented in detail to illustrate the problem of recognition and treatment.

Report of a Case

A 65-year-old woman was admitted to Huggins Hospital on Oct. 2, 1955, with a history of pain (heavy discomfort) in the right upper abdominal quadrant, penetrating to the right costovertebral angle posteriorly, and accompanied by nausea and vomiting (no hematemesis) of five days' duration. No other symptoms were elicited referable to cardiac or gallbladder disease. Urinary symptoms were denied. The patient's appetite was good, and there was no recent weight loss. The history revealed that the patient had been treated for laryngeal tuberculosis 35 years prior to admission and had thereafter apparently recovered. She had weakness of the back muscles of many years' duration, probably related to an early childhood injury.

Physical examination revealed a woman of small stature. The temperature and pulse and respiratory rates were normal. A movable, nontender, 8-by-12-cm. mass was felt in the right upper abdominal quadrant, and it extended into the right lower quadrant. Other physical findings were limited to the back muscles, which showed organic weakness, but posture was fairly good.

Laboratory determinations showed that the values for hemoglobin, hematocrit, white blood cells, nonprotein nitrogen, blood sugar and amylase, urinary diastase, icteric index, and the Van den Bergh reaction were all within normal limits. Urinary specific gravity was low. Chest x-ray films revealed multiple, tiny, old foci of calcifications at the apex of the left lung, with no evidence of tuberculous activity. Indirect laryngoscopy showed paresis of the left vocal cord and deformity of the larynx consistent with old tuberculosis.

Cholecystography revealed normal filling of the gallbladder and demonstrated a congenital constriction at the junction of the distal and middle thirds of the fundus. An intravenous pyelogram outlined a large tumor mass, at the lower pole of the right kidney, that contained no dye. The left kidney shadow was normal. Cystoscopy with the patient under spinal anesthesia was normal. Retrograde pyelography demonstrated a right ureteral obstruction interpreted as secondary to old tuberculosis. The postcystoscopy course was uneventful.

As part of the patient's preparation for surgery, aminosalicylic acid (PAS) and streptomycin were given to prevent tuberculous reactivation. At operation on Oct. 7, 1955, a large cystic tumor mass replacing the right kidney was mobilized and removed with minimal blood loss. Spinal anesthesia was used. Exploration of the abdomen revealed no disease and confirmed the presence of the congenital constriction of the gallbladder which had been seen on x-ray films. Pathological examination was reported as showing pyelonephrosis, hydronephrosis, and chronic ureteritis.

From the onset of operation there was a tendency toward hypotension and tachycardia; otherwise the patient's condition was good. Blood pressure was maintained by blood-loss replacement and the administration of phenylephrine (Neo-Synephrine) hydrochloride. In the immediate postoperative period, the patient's temperature and pulse rate rose sharply and hypotension became severe, despite adequate blood, fluid, and electrolyte therapy, as shown in figures 1 and 2.

On the first postoperative day unexplained progressive hypotension persisted even with the administration of concentrated arterenol solution. The patient's appearance and color were excellent. She was rational and alert and had no pain or blood loss. Urine output was excellent. Digitalis and oxygen were given for their possible supportive value to the heart, although there was no cyanosis present.

By the third postoperative day, hypotension was severe and the blood pressure was labile. The patient was somewhat confused and had intermittent coldness of the extremities. There was hemoconcentration and marked increase in blood

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viscosity. Arterenol was given continuously, but it was ineffective. An electrocardiogram showed evidence of myocardial ischemia.

The clinical picture suggested adrenal cortical insufficiency, and a total of 250 mg. of hydrocortisone was given intravenously on the third postoperative day. A few minutes after the first dose of 100 mg. of hydrocortisone the blood pressure rose sharply and then gradually stabilized. Subsequently there was rapid improvement in the patient's condition.

On the fourth postoperative day a total of 200 mg. of hydrocortisone was administered intravenously. The patient's blood pressure continued to approach normal. No arterenol was required. The pulse rate, temperature, and hemoconcentration declined. By the 11th postoperative day the patient was fully ambulatory, and the wound was healing well. She went home on the 14th postoperative day.

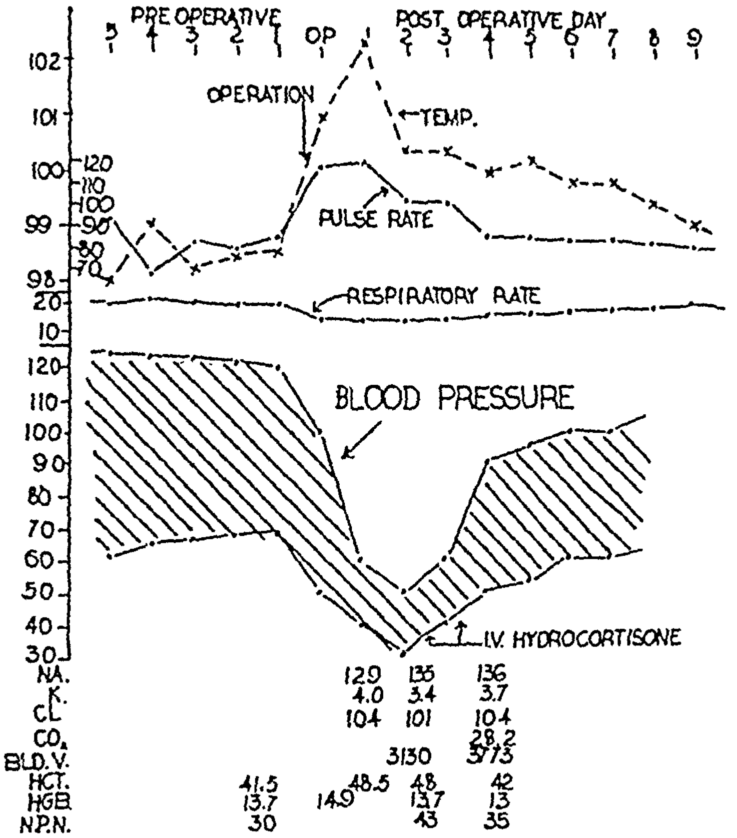

Fig. 1.—Chart showing rise in patient's temperature and pulse rate and lowering of blood pressure during postoperative period, with subsequent rise in blood pressure after intravenous administration of hydrocortisone. At bottom of chart are given values of such blood constituents as sodium, potassium, chloride, and nonprotein nitrogen, as well as the blood volume (in milliliters), carbon dioxide-combining power (in volumes per cent), hemoglobin level (in grams per 100 ml.), and hematocrit reading (in percentage).

Four other cases have been seen at this hospital, of similar type although less dramatic in detail. In each the problem was one of severe hypotension, unexplained by any of the ordinary causes of shock and unresponsive to the usually effective therapeutic measures. Sodium loss specifically was not a cause in any one of the cases.

Comment

A review of case data at the Memorial Center for Cancer and Allied Diseases, New York, indicated that approximately 1 out of every 300 patients subjected to surgery exhibited some form of adrenal cortical insufficiency. The effect of preoperative medication, anesthetization, and operation on the development of postoperative adrenal insufficiency has been suggested by the studies of Schwartz and co-workers[4] on patients with adrenal cortical hypofunction. It appeared that no one drug or method of administering an anesthetic was without harmful effect. Complications occurred proportionately and as frequently with each o the ordinary medicaments and anesthetic agents used It was also noted that evidence of adrenal cortical in sufficiency might develop during any type of opera tion, including minor procedures. Schwartz and h co-authors recommended that premedication be mi imal in dosage. They commented that agents whic may produce significant hypotension, such as spin anesthesia, tribromoethanol (Avertin), and deep i halation anesthesia, are inadvisable and warned th an alert watch must be kept to avoid hemorrhage ar excessive trauma.

A history of prolonged reaction time from anesth sia or the appearance of marked hypotension duri *previous operations should arouse suspicions of inad* quate function of the adrenal cortex. Decreased t erance to *stress is found more frequently in the old* age group and *in the debilitated patent who has h* repeated operative procedures.[5] *Also, there is a ne* for *increased cortisone therapy* during any form *stress, including surgery in patients with* adrenal cor cal hypofunction *and those who have undergone adre* alectomy, and in those patients who are receiving who have received cortisone *for other condition.*[6]

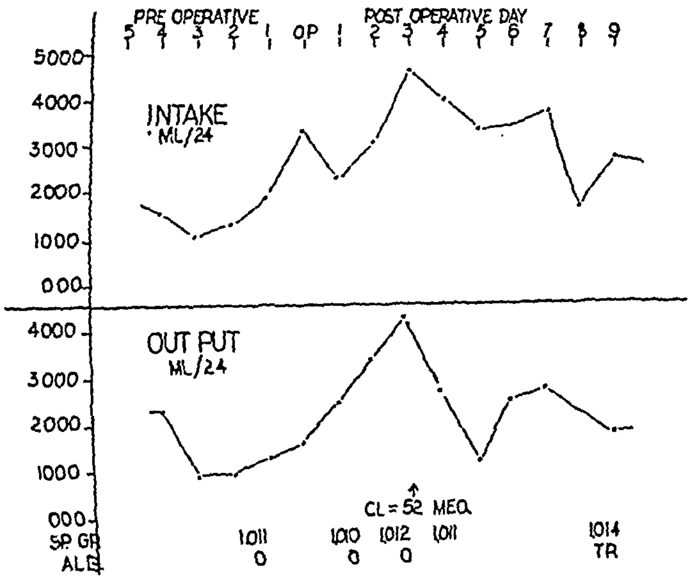

Fig. 2.—Chart showing volume of fluid intake and output (in milliliters per 24 hours) of patient with acute adrenal cortical insufficiency. Under output there are also given such urinary findings as specific gravity amounts albumin. Red blood cell casts were present in the urine on the first, third, and eighth days after operation.

Previous adrenal disease, such as infection (especially meningococcemia or staphylococcemia and tuberculosis), neoplasm, or idiopathic atrophy may result in latent chronic adrenal cortical insufficiency; with the development of adrenal crisis during stressful situations. Secondary adrenal cortical insufficiency as a result of pituitary hypofunction is almost invariably as-ated with other anterior pituitary hormone deficies and is more commonly recognized prior to ery.

ersistent hypotension during surgery or in the imliate postoperative period is the most significant of the development of adrenal cortical insufficien- The picture is that of severe vascular collapse, a failure to respond to adequate blood, fluid, and trolyte therapy and vasoconstrictor agents. The mpt favorable response to intravenously adminisd hydrocortisone suggests that the basic physiologidisturbance is a deficiency of adrenal cortical secre. The degree of azotemia, hemoconcentration, and uced blood volume[8] have been used as indexes of the erity of adrenal cortical insufficiency in adrenalectoed animals and may be similarly useful in man.

t now appears that the intravenous administration corticotropin (ACTH), with the determination of levels of 17-hydroxycorticosteroids and 17-ketoiods in blood or urine, provides the most accurate ns of quantitating adrenal cortical response to itary stimulation.[9] It has been estimated that the put of hydrocortisone by the adrenal cortex during stress of surgery and anesthetization normally is roximately 50 to 100 mg. the first day, gradually reasing to the normal output of 25 to 30 mg. in ut five to seven days.[10]

ecently, Perlmutter[11] has proposed a rapid test for enal cortical insufficiency useful in the postoperative ck state. As a result of the intensive postoperative enal cortical activity, the renal tubules normally orb most of the sodium from the glomerular filtrate, s causing a marked decrease in urinary sodium contration. When adrenal cortical or renal tubular inficiency is present, sodium output remains relatively h and serum sodium is decreased. The failure of an reased ratio between urine uric acid and creatinine the first 24 postoperative hours has also been used evidence of adrenal cortical insufficiency.[12]

atients operated on for various diseases with an ventful postoperative course have a maximal dease in circulating eosinophils on the first and second toperative days, followed by an increase surpassing initial level up to the seventh postoperative day. ler patients show a more pronounced eosinophil dession and a delayed eosinophil recovery.[13] The inophil response to epinephrine is without much ue as a measure of adrenal cortical activity, since administration of adequate doses of epinephrine been shown to produce eosinopenia even in the ence of adrenal cortical tissue.

ipsett and Pearson[14] have recently emphasized t the clinical situation of adrenal crisis is a synthesis two distinct syndromes, that of sodium loss and that deficiency of adrenal hydrocortisone. Therapeutily, it is important to distinguish between sodium detion, deficiency of 17-hydroxycorticosteroids, and a nbination of the two.

he mechanism of the effective action of hydrotisone therapy in subclinical adrenal insufficiency unknown. It appears that the capacity of cortisone to increase arterial pressure is accentuated in the presence of renal damage and states of adrenal insufficiency. The administration of cortisone alone has been demonstrated to be capable of correcting peripheral vascular failure encountered in acute adrenal insufficiency.[15] Cortisone probably increases capillary resistence[16] and may be necessary to maintain the tone of the terminal vascular bed. In addition, adrenal cortical extracts have been shown to potentiate the action of vasoconstrictors on blood vessels.[17] It may be, therefore, that cortisone has a potentiating effect on vasoconstrictor agents as well as a direct action on peripheral blood vessels.

Effective management depends on recognition of the problem of adrenal cortisone insufficiency. A preoperative test of adrenal response to stress should be made in patients who have exhibited previous surgical hypotension or prolonged reaction time to anesthetization; this test should also be made in the elderly debilitated patient and in those who have had repeated operations. Patients who have received cortisone in the past or who are receiving cortisone currently must be managed with a well-planned preoperative and postoperative regimen of increased cortisone therapy to support them through the period of increased stress.

The cornerstone of treatment is the administration of adequate amounts of cortisone or hydrocortisone. The assumption is never warranted that the clinical syndrome is due solely to salt loss.[14] In addition to adequate therapy with blood, fluids, and electrolytes, intravenously given hydrocortisone results in a dramatic rise and stabilization of the blood pressure and marked improvement of the patient's condition. The administration of hydrocortisone intravenously should be such as to maintain a high level of circulating hormone for several days, followed by a gradual reduction to maintenance levels.

Two possible dangers must be considered when cortisone or hydrocortisone is used for short-term, intensive therapy. Since cortisone and hydrocortisone increase the excitability of the central nervous system, epileptic seizures or psychotic reactions may be precipitated in susceptible patients. Another possible danger is that of excessive sodium retention and the development of edema produced by a high sodium intake during the intravenous administration of hydrocortisone.[10]

Summary

Acute adrenal cortical insufficiency may be an important factor in postoperative shock which does not respond to the usual measures of adequate blood, fluids, electrolytes, and vasopressor agents. Persistent hypotension during surgery or in the immediate postoperative period is the most significant sign of the development of adrenal cortical insufficiency. Effective management depends upon the recognition of this clinical condition and its favorable response to hydrocortisone therapy.

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NONABSORBABLE WATER-SOLUBLE CONTRAST MEDIUMS

THEIR USE IN DIAGNOSIS OF INTESTINAL OBSTRUCTION

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/ The interpretation of scout abdominal roentgenograms for intestinal obstruction depends chiefly on evaluation of intraluminal gas and fluid patterns. All too often it is assumed that this diagnosis is arrived at easily when gas and fluid levels or ladder patterns of distention are present in the small intestine. However, the difficulties and shortcomings inherent in this examination often are underestimated.

Opinion as to the use of barium sulfate suspensions for examinations of the small intestine when intestinal obstruction is suspected still is divided. Generally such examinations are considered hazardous when a complete or strangulating obstruction exists. The danger is regarded as less when there is only partial obstruction of the small intestine, provided that the colon is clear. Difficulty also may arise in the differentiation of distended loops of small intestine from dilated colon, particularly the transverse colon. Sometimes neither the configuration nor position of the distended loops permits their anatomic identification.

Recently, the oral administration of water-sol substances commonly used for intravenous urogra and angiocardiography has been suggested for gas intestinal examinations.[1] These substances are n toxic, cannot solidify, and are unabsorbable from gastrointestinal tract. I have used diatrizoate (paque) sodium in dilutions varying from 30 to and Renografin (a mixture of the sodium and met glucamine salts of diatrizoate) in strengths var from 30 to 76%.) On request, diatrizoate was m available by its manufacturers in powder form an bulk solution, which may be diluted and flavore desired. Renografin was later supplied in bulk sterile 60% solution for oral use. The main advan of these preparations is lower cost.

In normal adults, good opacification of the stom duodenum, and upper jejunum can be obtained w solutions of either contrast medium in dilutions from 50 to 90% (see figure, parts *A* and *B*). Wea solutions are adequate for people of slight stature for children. Good portrayal of the mucosal folds the duodenum and proximal jejunum is obtained, the mucosal pattern of the distal two-thirds of the jejunum and of the ileum often is indistinct. This

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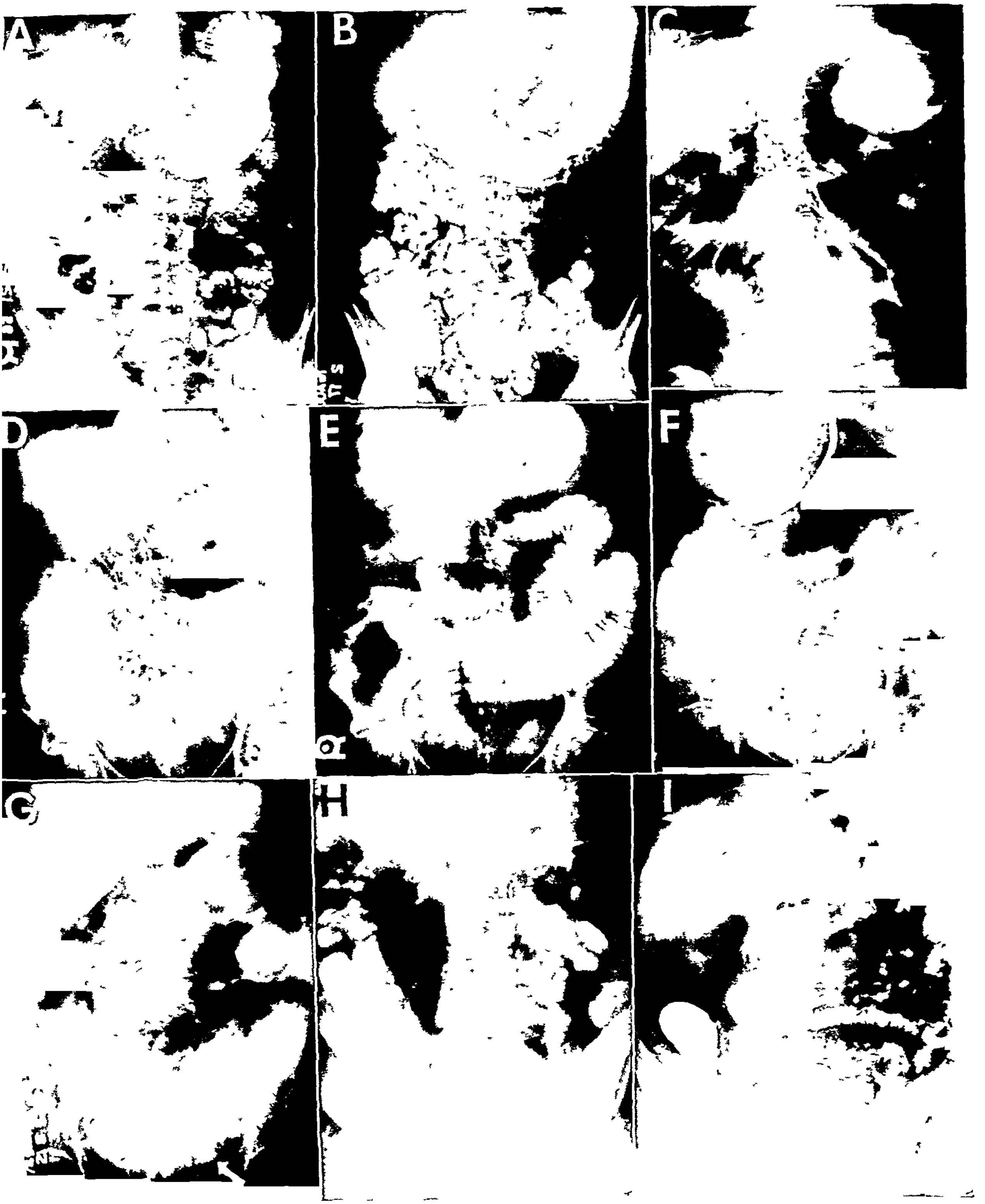

abdominal roentgenogram, with patient supine, 15 minutes after oral ingestion of 60 cc. of 90% diatrizoate (Hypaque) so- . Stomach, duodenum, and jejunum are well outlined, and some of contrast material has reached the ileum. *B*, film made one after oral ingestion of 90 cc. of 75% diatrizoate in another normal adult patient. Stomach contains considerable amount of rast medium, although small intestine and colon have been traversed. This illustrates rapid transit time usually seen. Note lack arpness of mucosal pattern of small intestine. *C*, abdominal roentgenogram, with patient supine, one hour after oral ingestion cc. of 76% Renografin in patient with ileus secondary to acute ulcerative colitis. Contrast medium has collected and remained stric fundus. *D*, roentgenogram, with patient supine, showing distention of small intestinal loops in midabdomen of 70-year-old an with abdominal distention and vomiting for two days. This was interpreted as consistent with obstruction in ileum. *E*, same nt 15 minutes after administration of 60 cc. of 76% Renografin through Levin tube. Distended loops are jejunal. *F*, same pa- after four hours. Contrast medium still is mainly in jejunum, but some has entered ileum and ascending colon. This was osed as partial obstruction. At operation, distal jejunum was adherent to and kinked against sigmoid by firm adhesions. nteroposterior roentgenogram three hours after oral ingestion of 60 cc. of 70% diatrizoate. Note distended jejunum, indicating al obstruction. Narrowed segment is seen low in pelvis to left of midline (arrow). *H*, same patient, 24-hour film. Small intes- *is* empty, and contrast medium is in colon. *I*, same patient, four days later. Three-hour film after barium meal. Note stenotic in pelvis. This patient, a 48-year-old woman, had partial obstruction due to peritoneal metastases from omental sarcoma.

attributed to the hygroscopic quality of the contrast medium. The normal transit time of these substances through the small intestine is from 30 to 90 minutes. It is not uncommon to find the contrast medium in the stomach, the entire small intestine, and the colon within the same hour.

If the clinical picture suggests the possibility of obstruction of the small intestine and plain roentgenograms show an equivocal pattern of intestinal distention, information about the size and location of the various intestinal loops may be obtained by the use of these water-soluble materials without danger or inconvenience to the patient other than the distaste of swallowing a rather acrid medicine. The main purpose of this procedure is to help determine the location and extent of an obstructive process.

Oral administration of from 30 to 90 cc. of an adequate concentration of either diatrizoate or Renografin has proved helpful. With bedridden patients, it is important to move the patient about to make sure that the contrast medium does not collect and remain in the fundus of the stomach. If this cannot be overcome, the contrast medium may have to be instilled through a duodenal tube. When adequate passage through the duodenum is observed, it is quickly possible to identify the position, caliber, and rate of passage of the contrast medium through the small intestine. Subsequent films made at appropriate intervals serve to delineate the intestinal loops, which become partly opacified as the contrast medium traverses them.

This procedure was employed in 10 cases in which the clinical picture and the scout roentgenograms suggested the presence of either obstruction of the small intestine or ileus after operation (see figure, part *C*). The surgical procedures had been laparotomies for ovarian carcinoma, pancreatic carcinoma, ulcerative colitis, regional enteritis, and carcinoma of the ascending colon. The contrast medium traversed the small intestine within 90 minutes in these patients, eliminating the possibility that there was any significant degree of obstruction. Conservative treatment for ileus was effective.

There were four postoperative patients in whom the presence of obstruction of the small intestine due to adhesive bands was considered probable (see figure, parts *D*, *E*, and *F*). In these the opaque medium was retained in loops of jejunum and proximal ileum for four hours or longer. Subsequent films at 12 hours showed some of the contrast material in the colon, while the distention of the small intestinal loops persisted. In these partial obstruction was diagnosed. In three, conservative treatment was elected even though equally competent observers differed in their opinion as to whether operation was indicated. Reoperation was considered necessary in one patient five days after operation, and several bands partially occluding the distal ileum were severed. In this patient the contrast material traversed the small intestine slowly. Retention of some in the ileum over a 24-hour period suggested a partial obstruction.

In two cases, partial small intestinal obstructio was attributed to peritoneal carcinomatosis fro ovarian malignancies, and in one a similar process w due to spread from an omental sarcoma. Scout fil of the abdomen showed distention of the small i testine with numerous fluid levels. There was co siderable delay in the passage of the opaque mediu through the small intestine, indicating partial obstru tion. In the third patient (see figure, parts *G*, *H*, a *I*), a narrowed loop of small intestine was visible the left of the midline in the pelvis. This was c sidered the obstructive site. After six hours the c trast medium appeared in the colon. Because of t it was considered safe to repeat the examination w barium. Again there was delay in the transit of contrast material, but several areas of stricture co be clearly identified, better than with the water-solu substances. This suggested that diatrizoate or Re grafin be used for preliminary studies and that m definitive examinations with barium can be done w necessary.

Two cases of carcinoma of the cecum presented partial obstructions at the ileocecal valve. In b there was sufficient opacification of the cecum to id tify the lesion. The obstruction of the small intest was considered partial because some of the cont material entered the colon after six hours. One pati responded temporarily to intubation. The lesion overlooked, and obstruction recurred about two we later. The diagnosis of cecal carcinoma was confir at operation. In the second case there was mar distention of the entire small intestine. The ileoce junction was narrowed and tapered. At operation t was found to be due to infiltration of the ileocecal valve with tumor.

Water-soluble substances may also be used for examinations of the colon when there is question as to advisability of using barium. Such doubt may arise in patients with intussusception or where the possibility of perforation of the intestine or prolonged retention of contrast material is anticipated.

Summary

Water-soluble contrast mediums used for intravenous urography or angiocardiography may be helpful in the examination of the small intestine when the use of barium sulfate suspensions is considered hazardous. These may be regarded as preliminary studies and may be followed by barium examinations if patency of the intestine is established.

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The diatrizoate sodium used in this study was supplied as Hypaque sodium by the Medical Research Department of Winthrop-Stearns, Inc., New York, and the Renografin by the Squibb Institute for Medical Research, New Brunswick, N. J.

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APPARENT INCREASE IN FREQUENCY OF INFECTIONS INVOLVING TORULOPSIS GLABRATA

PROCEDURE FOR ITS IDENTIFICATION

Lynferd J. Wickerham, Ph.D., Peoria, Ill.

Occasionally, rare yeasts of medical significance are ent to me for identification. Among these have been hree strains of Torulopsis glabrata (Anderson) Lod-er and De Vries in the years 1938 to 1956. Since Iarch, 1956, six additional strains of this species have een received, all from human patients including two with yeast septicemia. The well-known increase in in-ection caused by Candida albicans following the ex-ensive use of antibiotics[1] suggests a possible similar elationship between infection by T. glabrata and the use of antibiotics. The object of this report is to de-cribe how this species can be recognized. When it can be identified with certainty by medical technicians, all failures and successes in treatment of patients infected by it can be referred to a definite name rather than being accredited to an unknown yeast or, worse yet, to the wrong species. At present the yeast is so little known that it is not mentioned in the more prominent books on medical mycology. T. glabrata has remained almost unknown because it is much less common than the Candida species found on or in the body, and its ability to cause disease in laboratory animals is marginal.

Black and Fisher[2] isolated T. glabrata from a patient who had bronchopneumonia. The yeast was inoculated intraperitoneally into rats. The rats were killed after 5 to 10 days, and the yeast was cultivated from some of the organs. In both rats the omentum was contracted into a hard mass and contained some hard nodules. López Fernández,[3] in an article containing many photographs, reported on the pathogenicity of several strains of T. glabrata. Rabbits, guinea pigs, rats, and white mice were used, the mice being more sensitive and giving a more complete histopathological picture. Intravenous and intraperitoneal inoculations gave the most constant results. The most characteristic feature was the formation of nodular lesions with an intense elaboration of reticuloendothelial cells. The yeast cells were localized within the macrophages, to give a histopathological aspect which López Fernández stated was identical to that found in histoplasmosis.

Lodder and De Vries[4] injected intracardially five strains of T. glabrata from human sources into five rats each. Three of the five inoculated from one of the strains died in about three months. Two other rats died also, each having received injection of a different strain of yeast. The yeasts were isolated from the lungs of the dead rats. Lodder and De Minjer[5] injected T. glabrata into a number of mice and rats intraperitoneally and subcutaneously. No pathological changes could be observed in these animals, and yeast cells were never found in any of their organs. Lodder and De Minjer concluded that this strain was not pathogenic. There are good reasons for believing that all of the preceding papers were based on studies of authentic strains.

The results of tests in animals are certainly not the final indication of a strain's pathogenicity in humans when the results are weak and variable, but the recurrence of characteristic pathology after injection with some strains is strongly suggestive. The repeated isolation of the yeast in cases of septicemia in humans is strongly indicative, and over 60 positive cultures have been made from the blood of one patient. Just as the common use of antibiotics has increased the incidence and seriousness of infection by the very commonly carried C. albicans, so an increased incidence of human infection by the more marginally pathogenic species, T. glabrata and C. tropicalis, might be anticipated. Stovall and Pessin[6] have demonstrated that 5 to 15 times as many cells of C. tropicalis as of C. albicans are required to cause death in rabbits; and Seligmann[7] showed that a strain of C. albicans which was nonpathogenic for mice became lethal when cells were accompanied by 2 mg. of aureomycin. It should be of interest for someone to test the pathogenicity of T. glabrata and C. tropicalis accompanied by antibiotics.

Differentiation of Yeast Species

The following notations regarding the identification of fermentative yeasts that are more or less commonly found on or in the human body are given from the viewpoint of one who has worked with pathogens to a considerable extent but who has been concerned with the taxonomy of all yeasts to a greater extent. Three of the species in the table are of special interest: C. albicans, which is definitely known to cause disease, and T. glabrata and C. tropicalis, which are thought to be marginal pathogens. Sufficient information will be given concerning these three to permit their separation from all other species that might be expected on or in the human body.

I routinely use 38 carbon sources for the identification of yeasts, of which five were selected for the table. As few of the yeasts studied are pathogens, an incubation temperature of 25 C is used for a period of 20 to 24 days. The assimilation reactions are less variable than fermentation reactions, and only 0.5% of carbohydrate is required as compared with 2% for all fermentation tests except with the sugar raffinose, which requires 4%. Cornmeal agar or other mediums used for enhancing the development of hyphae may be used for colonies or dalmau preparations. The latter

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permit the direct microscopic observation of cultures growing in plates or on agar-coated slides. I have described the morphologic and physiological procedures mentioned here elsewhere.[8]

C. krusei at four to six days' incubation on commonly used mediums produces colonies which usually show hyphal tips in the moderately crowded portion of the Petri plate when the plate is held to the light with the bottom of the plate toward the observer. Large cells are present microscopically. This species ferments glucose strongly but has no action on trehalose. C. krusei is a very common saprophyte.

T. glabrata produces colonies which are smooth and show no hyphal tips. It causes gaseous fermentation of glucose and trehalose. No other species of yeast is known which ferments these sugars and does not assimilate maltose, sucrose, and cellobiose. T. glabrata is very rarely isolated from sources other than the human body. It is most commonly found in the urinary, intestinal, and respiratory systems but it is not found in the central nervous system. It is much more closely related to the Candida species discussed immediately below than to Cryptococcus.

*Diagnostic Reaction of Yeasts Which Produce Gaseous Fermentation of One or More Sugars and Are More or Less Commonly Associated with Human Body**

	Carbon Assimilation					Fermentation					
	Glucose	Galactose	Maltose	Sucrose	Trehalose	Glucose	Galactose	Maltose	Sucrose	Lactose	Raffinose ⅓†
Torulopsis glabrata	+	—	—	—	+	+	—	—	—	—	—
Candida krusei	+	—	—	—	—	+	—	—	—	—	—
C. parapsilosis	+	+	+	+	+	+	V	—	—	—	—
C. guilliermondii ...	+	+	+	+	+	+	V	—	V	—	V
C. albicans v. stellatoidea	+	+	+	—	+	+	—	+	—	—	—
C. albicans	+	+	+	+	+	+	V	+	—	—	—
C. tropicalis	+	+	+	+	+	+	+	+	+	—	—
C. utilis	+	—	+	+	+	+	—	—	+	—	+
Saccharomyces cerevisiae	+	+	+	+	+	+	+	+	+	—	+
S. fragilis	+	+	—	+	V	+	+	—	+	+	+

* + Means growth where it refers to assimilation, gas where is refers to fermentation; V means variable;—means no growth where reference is to assimilation, no gas where reference is to fermentation.

† Raffinose ⅓ indicated that hydrolysis proceeds only to the melibiose stage.

C. parapsilosis, C. (Endomycopsis) guilliermondii, C. albicans, and C. tropicalis occur close together taxonomically in the same phylogenetic line of species. C. albicans and C. tropicalis strains generally produce hyphae quite noticeably, C. parapsilosis and C. guilliermondii to a lesser extent. C. albicans and C. tropicalis are immediately distinguished by their fermentation reactions. C. albicans and its variety stellatoidea is the only species associated with the animal body that produces a gaseous fermentation of maltose and not of sucrose; it also is the only yeast found there which produces chlamydospores. C. tropicalis is almost unique in producing a gaseous fermentation of sucrose and an alkaline reaction in raffinose. Rare strains of Saccharomyces also have this combination of reactions on sucrose and raffinose, but they are very different from C. tropicalis in carbon assimilation reactions and they have not been reported from the animal body.

C. parapsilosis and C. guilliermondii show no defini difference in the table presented here, but nearly a strains of C. guilliermondii ferment sucrose, wherea no strains of C. parapsilosis do. The two species diffe in their ability to assimilate cellobiose and raffinose, C. parapsilosis assimilating neither and C. guilliermondi assimilating both. C. guilliermondii has a rather wid range of variation. It is possible that a further stud of mating type reactions[9] and biochemistry will sho that C. guilliermondii is presently composed of mor than one species. C. guilliermondii and C. parapsilosi are most commonly found in association with trees and in soil; C. tropicalis is common in soil and occasionall occurs in the respiratory tract, and C. albicans is almost exclusively found in the animal body.

C. (Torulopsis) utilis is a rare yeast usually found associated with the animal body or in plants producing bakers' yeast. It is readily differentiated from the other fermentative species in the table by its carbon assimilation reactions and by its ability to assimilat nitrate. Saccharomyces cerevisiae has been isolate from the vagina of diabetics and from lungs an mouths of patients. S. fragilis and its imperfect form C. pseudotropicalis, are occasionally isolated from th body and are the only lactose-fermenting species foun there. Cryptococcus neoformans and related specie are differentiated from all of the preceding by thei ability to synthesize starch and inability to cause gaseous fermentation of sugars.

Summary

There is some indication that Torulopsis glabrat previously considered to be slightly pathogenic (nonpathogenic, is now becoming more common an may in some cases cause serious infections. This pape is written to alert physicians to its occurrence and t inform technicians regarding its identification.

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COUNCIL ON FOODS AND NUTRITION

SYMPOSIUM ON NUTRITION IN PREGNANCY

The following announcement has been authorized by the Council on Foods and Nutrition.

Philip L. White, Sc.D., *Secretary.*

A symposium "Nutrition in Pregnancy" will be held in Columbia, Mo., Oct. 11, 1957. This symposium will be sponsored by the Council on Foods and Nutrition with the cooperation of Boone County Medical Society; School of Medicine, University of Missouri; and Adult Education and Extension Service, University of Missouri.

The program, which will begin at 8 a.m. Friday, Oct. 11, will be held in the auditorium of the University of Missouri Medical Center. The meeting will be open to all interested persons, and there will be no registration fee.

The following program has been arranged:

Morning Session

8:00 a.m. Registration.

9:00 a.m. Influence of Maternal Nutritional Level on the Fetus and Infant. Dr. Ray Hepner, Associate Professor of Pediatrics, University of Missouri Medical Center.

9:30 a.m. Metabolic and Biochemical Changes in Normal Pregnancy. Dr. Icie Macy Hoobler, Consultant, Merrill-Palmer School, Detroit; Former Director, Research Laboratory, Children's Fund of Michigan.

10:30 a.m. Importance of Nutritional State of Mother Prior to Conception. Dr. Genevieve Stearns, Research Professor of Orthopedics, State University of Iowa.

11:15 a.m. Nutrition Experiments as an Instrument of Teratologic Research. Dr. Joseph Warkany, Professor of Pediatrics, University of Cincinnati.

Discussion: Dr. Albert G. Hogan, Professor Emeritus of Animal Nutrition, University of Missouri.

Afternoon Session

2:00 p.m. The Effect of the Reproductive Cycle on Nutritional Status and Requirements. Dr. William J. McGanity, Associate Professor of Obstetrics and Gynecology, Vanderbilt University, Nashville, Tenn.

2:45 p.m. Dietary Habits During Pregnancy. Miss Dorothy Vorhies, Associate Professor of Dietetics; Mrs. Barbara Birmingham, Nutritionist, Outpatient Department, University of Missouri Medical Center.

3:30 p.m. Panel Discussion to Review Epidemiologic Studies.

Moderator: Dr. Icie Macy Hoobler.

Participants: Dr. Samuel B. Kirkwood, Clinical Professor of Obstetrics, Department of Maternal and Child Health, Harvard University School of Public Health; Commissioner, Department of Public Health, Commonwealth of Massachusetts. Dr. William J. Darby, Professor of Biochemistry, Vanderbilt University School of Medicine. Miss Marjorie Heseltine, Chief, Nutrition Section, Division of Health Services, Department of Health, Education, and Welfare. Drs. Hepner, McGanity, and Stearns.

MEDICINE AT WORK

WORLD MEDICINE COMES OF AGE

FEARLESS CONCERN FOR PATIENT IS HIGH POINT OF HARMONY IN VOICES OF 700,000 DOCTORS

Milton Golin

Cuban police seize physicians as hostages. A "flu" epidemic finds the Philippine Medical Association in desperate need of drugs. Maltese doctors are threatened when they resist a move to limit patients' free choice of physician. . . .

These recent crises carry a direct threat to the general public, not to the medical profession alone. Ten years ago, doctors of each nation usually had to slug out such problems themselves. More likely than not, there was no place outside their borders to turn for help—no voice to bespeak their troubles or to forewarn their colleagues in other lands. Massive danger to health and medical practice was only part of the handicap to physicians and their patients 10 years ago. Doctors needed to know what scientific developments in Berne, Switzerland, could benefit clinical knowledge in Kansas City, or what new medical education precept discussed in Vienna might raise the proficiency level of an intern or a budding specialist in Melbourne.

Today medicine has an international voice, the World Medical Association, a confederation of 53 national medical associations representing more than 700,000 physicians around the globe. It is sounding an alarm against those who would oppress the doctor and his patient. It is telling the story of far-flung advances in medical science. It is rallying help for brother physicians who are in need.

Help was needed urgently last Memorial Day as Asian (Far Eastern) influenza was striking hundreds of thousands of Filipinos. Physicians were running out of antipyretics. Off went a frantic cable from the Philippine Medical Association to the World Medical

Association headquarters in New York City: "Request immediate airlifting of antipyretics, analgesics and if available polyvalent flu vaccine." The cable could not have arrived at a more difficult time. A long holiday week end loomed ahead, and many pharmaceutical firms either were closed or were operating with only stand-by staffs. Air transportation companies had their own priority problems. There was the prospect, too, of governmental red tape in an international drug shipment.

But WMA's secretary-general, Dr. Louis H. Bauer, and his staff tackled the problem with know-how. First they notified the Civil Aeronautics Board, and the red tape began disappearing. Then they found that officials of the Borroughs Wellcome & Company, Inc., of Tuckahoe, N. Y., were able to prepare a 300-lb. shipment of an antipyretic analgesic for delivery to Newark airport before 5 p. m. that day. From there, a Flying Tiger cargo plane rushed the supply to San Francisco, where a Pan American Airways plane was waiting to carry it the rest of the way. On Sunday morning, before the end of the holiday week end, the drugs were delivered to eager medical hands in Manila. The accomplishment was speedy, spontaneous, and completely voluntary.

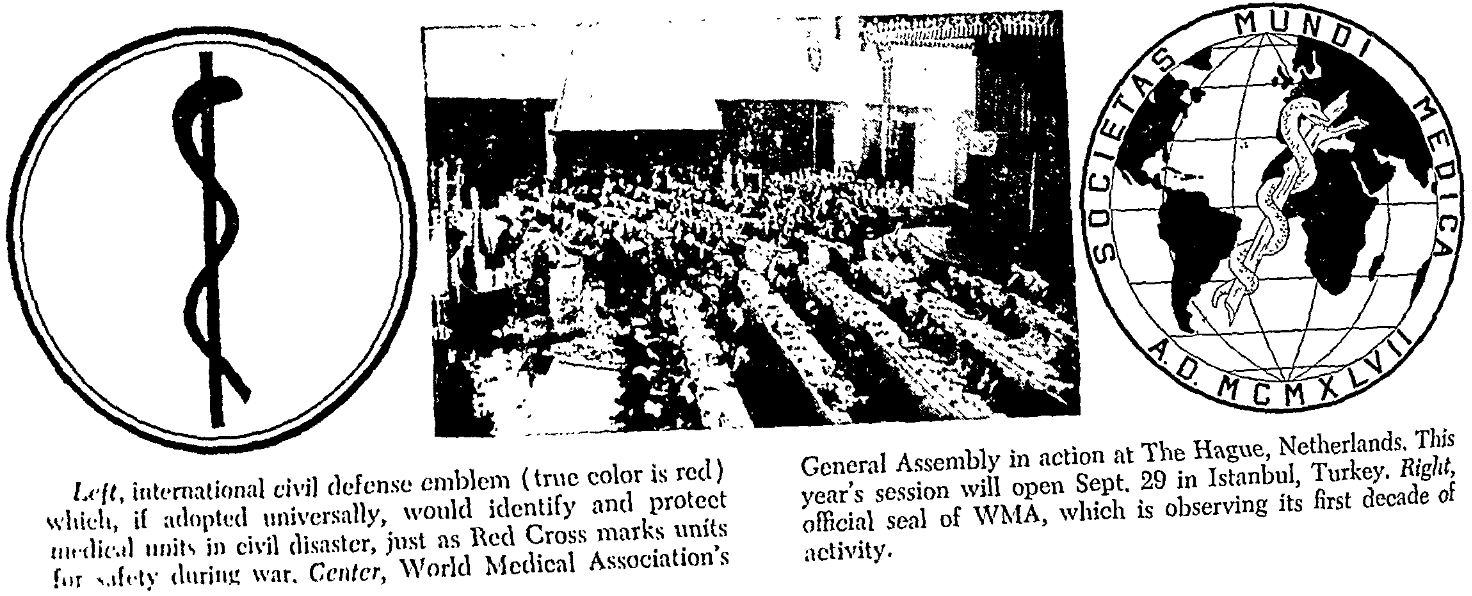
Within hours, other pharmaceutical firms were responding: A 600-lb. air shipment of analgesic from McNeil Laboratories; similar supplies arranged by E. R. Squibb & Sons; antibiotics and tranquilizers from Charles Pfizer & Company, Inc. Eli Lilly & Company launched a "crash" week-end project in their Indianapolis laboratories, in hopes of more quickly proving the effectiveness of their influenza vaccine. And Parke, Davis & Company authorized the Philippine Medical Association to obtain all necessary drugs from the company's Manila office. Said Dr. Bauer: "It is in the unity of purpose in such emergencies that the strength of the members of the health profession is tested—and proved equal to the task. It gives and does not count the cost; toils without resting; and asks no reward for its labor than a better and happier world for all people."

Help for Hungarians

Scores of Hungarian physicians certainly were asking no reward when they fled Communist butchery last fall. Many of them escaped so hurriedly that they left behind the vital papers which could show their accreditation. One of them reported: "I treated the children and youths injured in the rebellion. There was no time to fill in and file the numerous reports that the government required—nor did I feel justified in revealing the names, addresses, and conditions of the patients who came to me. . . . I was still in my clinic after midnight when a patient's mother came to warn me that the police were on their way to arrest me for treason. I fled. . . . I have no papers to prove who I am or what my education and experience has been—life, security, and freedom for my family were my only thought."

This doctor's plight illustrates a major project of the World Medical Association: A central repository for medical credentials (carrying the registrant's dated photograph, fingerprints, and notarized signature) so that physicians everywhere can prove their qualifications in case disaster strikes at their home country. "Success in this one program alone," says Dr. Bauer, "would justify the existence of WMA." For lack of such a repository, meanwhile, the WMA has been trying to establish new credentials for, and otherwise rehabilitate, Hungarian refugee physicians in the free medical world.

The WMA first spoke out against the Hungarian outrage last November in a telegram to the United Nations, strongly urging "that every necessary step be taken to prevent further butchery and deportation of Hungarian citizens and that the actions of those responsible for these atrocities be strongly condemned." Soon afterward, the U. N. did just that—censured perpetrators of the terrorism. Next came WMA's appeal to member associations and individual physicians that "all possible aid to Hungary through your organization . . . will be another proof of the importance the doctors of the world place on human dignity and freedom."



Left, international civil defense emblem (true color is red) which, if adopted universally, would identify and protect medical units in civil disaster, just as Red Cross marks units for safety during war. *Center*, World Medical Association's General Assembly in action at The Hague, Netherlands. This year's session will open Sept. 29 in Istanbul, Turkey. *Right*, official seal of WMA, which is observing its first decade of activity.

Mature Voice of Medicine

This is the voice of world medicine, come of age, a voice with authoritative tone. WMA's cry against oppression in Hungary is the mature call of a young adult born out of the ferment of World War II. Doctors from many nations were thrown together in the common missions of that great conflict over a decade ago. Their wartime brotherhood in arms suggested the values of a permanent international alliance of organized medicine. These physicians also felt the need to restate medicine's universality, and to express their independence of political compulsions. There was a need, too, to assert a solidarity in repudiating the perverted medical practices which were forced against some physicians in Nazi concentration camps. (Based on a 1948 "Declaration of Geneva," WMA physicians pledge: "I will retain the utmost respect for human life from the time of conception; even under threat I will not use my knowledge contrary to the laws of humanity.")

In this background will the World Medical Association observe its 10th birthday on Sept. 18. When the WMA speaks today, it is heard as the official voice of the practicing profession, listened to by such diverse global agencies as the International Labour Office, International Social Security Association, and World Health Organization. And when WMA spoke out for help for Hungary's refugee doctors (sending 500 Swiss francs as a starter) it spawned offers of additional funds, medical supplies and aid, housing accommodations, and resettlement facilities from medical associations in the United States, Austria, Chile, Finland, Denmark, Cuba, and other nations.

Crisis in Cuba

The Cuban contribution, particularly, carries an ironic note. Even today, less than a year after the last WMA general assembly in Havana, Cuban physicians are being persecuted because they, like their Hungarian colleagues, gave medical treatment to those demonstrating against the government. Last June the Cuban Medical Association offices were raided during a regular business session. Physicians who care for sick and wounded "street rebels" still are being beaten, imprisoned and held as hostages. It is a criminal offense for the medical association to hold meetings.

The crisis in Cuba is scheduled for discussion at Istanbul, Turkey, starting Sept. 29 when WMA President J. A. Bustamante, himself a Cuban physician, opens the next general assembly under a theme of "Solidarity—the Key to Medical Advance." The WMA already has pointed out that, while doctors must fulfill their duties as citizens, they are pledged to serve humanity—without regard to religion, nationality, race, social standing, or party politics. Not long ago the WMA announced that while it cannot "within the framework of its constitution engage in political conflicts . . . the doctors of Cuba need the moral support of every freedom-loving medical association." Since then, letters of encouragement have been arriving daily in Havana, Santiago, and other Cuban communities, reminding the doctors that colleagues in other lands are supporting them in all humanitarian efforts.

Belgium and Malta

Repeatedly, humanitarianism has shown its power in the climate of world medical opinion. In Belgium, the government time and again has tried to create a state medical service which would force doctors to abide by all past and future ministerial regulations, and would require patients to obtain a permit before seeking medical care. So the Belgian medical profession organized its own medical insurance plan to assure free choice of physician. Not only are Belgian doctors and patients satisfied, but physicians from other countries have acclaimed the plan. This spring, WMA Delegate Pierre Glorieux reported: "My [Belgian] government, recognizing that it could not control the medical profession, sent a new bill to the parliament which . . . would remove all aspects of social security from the legislative power of parliament. The prime minister has officially stated that he will respect all the conventions of the medical profession."

Not long ago the territorial government of Malta embarked on a campaign of threat, insult, and harassment in an effort to limit the private practice of medicine in favor of a salaried service. When the nearly 200 Maltese physicians resisted, the prime minister hinted that he would import physicians from abroad to carry out his plan. The WMA promptly alerted the profession in neighboring countries, and the result was a governmental agreement to put aside its plans. Again, international solidarity among physicians had upheld a measure of freedom for them and their patients. (Says the WMA: "Confidence in one's doctor is essential for good therapeutics, and a patient does not ordinarily have confidence in a doctor whom he is compelled to consult.")

In scattered regions of the world other physicians are gaining strength and moral support from the World Medical Association:

—The Venezuelan government revamps its social security bill in order to include a free choice of doctor for the patient, after the Venezuelan Medical Association points out that "the best interests of the people and the profession can only be served when the legislation conforms to the Twelve Principles of social security established by the World Medical Association."

—The Japanese Medical Association arouses physicians in scores of nations when it reports in the trilingual (English, Spanish, and French) *World Medical Journal*, official publication of the WMA, that government medicine methods threaten to restrict visits of Japanese patients to their doctors "in complete disregard of public opinion."

—Bolstered by WMA principles, the Chile medical profession has achieved a new unity in its three-year battle against restrictive government pressures.

Other Programs

It would be a mistake, judging from these events alone, to regard WMA as a lobby bent only on fighting the evils of socialized medicine. Other efforts outshine its role as an alarm-ringer and fighter for unfettered medical practice. One is the drive for a central repository for medical credentials. Another is sponsorship of the first World Conference on Medical Education, in London in 1953 (the second is set for 1959 in Chicago). The WMA also has adopted a modernized Hippocratic Oath, as well as an International Code of Ethics. Already successful in some South American countries, WMA is continuing to help in the establishment of national medical associations elsewhere throughout the world. Currently, it is:

—Promoting a freer international flow of proved therapeutic agents.

—Formulating principles of cooperation between practicing physicians and public health officers.

—Promoting medical research.

—Observing and reporting on the activities of more than 23 other international organizations as they affect the practice of medicine.

Another WMA project is universal adoption of a special emblem that will identify and protect medical units in civil defense—just as the Red Cross symbol protects units during armed conflict. The civil defense design (see figure) has been agreed upon by a joint committee of International Medicine and Pharmacy, the WMA, and the International Red Cross; it already is ratified by several nations.

Do Not Confuse WMA with WHO

WMA makes a point of distinguishing itself from the World Health Organization. WHO is strictly intergovernmental public health agency created by the United Nations and supported this year by member nations to the tune of $13,500,000. The World Medical Association, on the other hand, is completely nongovernmental in its origin of national medical associations. Operating this year on a budget of only $165,000 (little more than 1% of WHO's whopping expenditures), WMA is the voice of the practicing profession and the individual patient. During its first five years, WMA was pledged $250,000 by joint action of the American Medical Association Board of Trustees and representatives of the pharmaceutical industry. This placed the fledgling organization on sound footing. Since then, a United States Committee, and supporting groups of other nations—comprising individual physicians, laymen, and corporate members—have provided backbone support to WMA through dues ($10 annually per person in the U. S.) and voluntary activity.

One result of this individual participation is a stark awareness that what happens to the freedoms of 200 doctors and their patients on the Island of Malta, or in another part of the world, can affect the futures of doctors and patients everywhere. The U. S. Committee, approaching this year's membership goal of 10,000, thus is made up of physicians who have taken the lead in realizing that there is just as much need for boosting WMA as for taking part in county, state, and national medical society activities. They know that health is a language that can be spoken everywhere. Last spring, for example, some 3,000 physicians from 48 nations including the Soviet Union kicked over all barriers of communication when they took part in an annual International Congress of Otolaryngology in Washington, D. C. The atmosphere was amicable because they had a common interest.

Similar rapport in the health field is taking place this week in Rome, where an estimated attendance of 1,000 American dentists at the Federation Dentaire Internationale is furthering President Eisenhower's People-to-People Program. That program is being pursued not only by the U. S. Committee of the WMA but also by:

—Thousands of U. S. armed forces medical personnel who care for local populations overseas.

—American doctors who take part in demonstrations of new techniques during visits to hospitals and clinics abroad, as a means of stressing the desire of the United States to share its scientific progress.

—Pharmaceutical companies which emphasize international good will in their world-wide contacts. One—Smith, Kline & French—now has television production crews assigned to film activities of American physicians abroad in private, missionary, military, foundation, and government practice. Next February the firm will present the story as a documentary, portraying doctors as U. S. ambassadors of good will in Japan, Korea, Hong Kong, India, Indonesia, Iran, Turkey, Ethiopia, France, and Guatemala.

Instrument of Peace

As Dr. Albert C. Holt says in his hospital office in Bombay: "We are representing the whole medical profession in America to these people. . . . If we fail, American medicine has failed in their eyes."

Dr. Gunnar Gunderson, who is President-elect of the A. M. A., and also a director of WMA's United States Committee, puts it this way: "We can add new meaning to the M.D. degree—Medical Diplomacy. World peace cannot be attained until we build peace into the hearts and minds of men. Since physicians are the most intimately acquainted with the physical and mental needs of their patients, they are the most logical engineers for this great moral reconstruction project. If we more than half million physicians assume this task on an individual, personal basis we may yet succeed where soldiers, statesmen and politicians have previously failed."

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ANTIBIOTICS IN VIRUS DISEASES

The threat of widespread virus disease in the form of Asian influenza makes it highly desirable to clarify thinking on the treatment of virus diseases. The Council on Drugs has prepared a statment, which appears elsewhere in this issue of THE JOURNAL, page 58, explaining the limitations of antibiotics in influenza and pointing out that their use in the primary treatment of this disease would be contrary to good medical practice. The principles involved, however, also apply to other virus diseases.

Evidence that thinking on the treatment of virus diseases has been confused can easily be gathered from conversations in public places, where it is not unusual to hear a person say, "I have a virus cold, and my doctor is giving me penicillin." There is also evidence to indicate that the misuse of antibiotics is not limited to the United States. Hennessen in Düsseldorf[1] reports that "the use of broad-spectrum antibiotics often begins before a diagnosis has been established." He shows that the action of antibiotics in disease differs radically from that of antiserums. An antiserum acts on a particular pathogenic organism or it does not act at all. If one excepts sensitization phenomena, it can be said that an antiserum which does no good at least does no harm.

Antibiotics, however, act differently. If the antibiotic in a given case encounters a resistant organism, its side-effects become in fact its only effects. This, says Hennessen, is the situation with all true virus diseases. With the exceptions of the large-particle viruses like trachoma and psittacosis, the viruses are resistant to the known antibiotics. As a result, medication with antibiotics in virus diseases violates the principle of *nil nocere*, for it is likely to result in substantial damage. A virus disease is a systemic infection. Its manifestations in various individual organs follow an actual viremia during which a patient's defense mechanisms must be considered as being under serious strain even if his symptoms are not alarming. At this stage the administration of chemotherapeutic drugs and antibiotics inevitably disturbs the physiological flora of his body, possibly to a grave extent.

Most of the organisms that normally populate the orifices and cavities of the body are sensitive to antibiotics; while these organisms tend to vanish under treatment with antibiotics, the orifices and cavities tend to become populated by organisms that are resistant and frequently pathogenic. There is hardly a clinic or hospital today, says Hennessen, that is not inhabited by therapy-resistant, pathogenic organisms. A superinfection by such nosocomial organisms therefore is actually favored whenever an antibiotic is used where it is not called for.

Various other circumstances conspire to increase this danger. Jensen[2] has reported the successive appearance of strains resistant to penicillin, to streptomycin, and to chlortetracycline when these antibiotics were being used preoperatively as prophylaxis against infections in thoracic surgery. Mikkelsen[3] reported similarly on attempts to use powerful antibiotics prophylactically before gastrointestinal surgery, especially in cancer patients. Micrococcic infections increased to an alarming extent. Whitlows and furuncles afflicted the nonmedical personnel of the hospital, and a 12-bed ward had to be evacuated because its occupants all developed abscesses. Kapp[4] similarly, after studying the effects of antibiotic prophylaxis in 250 patients undergoing so-called clean surgical procedures, found that such prophylaxis actually predisposed the patient to postoperative infectious complications. Hennessen points out that side-effects of antibiotics which are merely annoying in healthy people can be disastrous in the critically ill.

A real danger exists in the use of antibiotics in virus diseases, whether patients take antibiotic-containing remedies sold over the counter or whether physicians prescribe them before the proper diagnosis is made. The Special Committee on Influenza appointed by the Board of Trustees has stated that there is some degree of justification for using antibiotics when secondary bacterial infections follow the primary influenza infection, as they often do. The principles that should be followed in that case are outlined in the statement by the Council on Drugs. As regards the primary viral infection, however, experience indicates that the logical procedure is the development of a specific, preventive vaccine.

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[1] Hennessen, W.: Antibiotika und Chemotherapeutika bei Viruskrankheiten, Deutsche med. Wchnschr. **82**: 1206 (July 19) 1957.

[2] Jensen, K. A., cited in Dangers of Using Antibiotics, Foreign Letters (Denmark), J. A. M. A. **164**: 1373-1374 (July 20) 1957.

[3] Mikkelsen, O., cited in Dangers of Using Antibiotics, Foreign Letters (Denmark), J. A. M. A. **164**: 1373-1374 (July 20) 1957.

[4] Kapp, D. F.: Antibiotic Prophylaxis in Unpredictable Infections: Medical and Surgical Fallacy, Guthrie Clin. Bull. **26**: 165-168 (April) 1957.

FITNESS OF AMERICAN YOUTH

In June, 1956, the President of the United States called a conference to deal with the fitness of American youth, a matter which had been called to his attention through publicity given to research based on certain alleged tests of physical fitness. This conference was held at the United States Naval Academy, Annapolis, Md., and was attended by approximately 150 invited participants, including physicians, athletes, coaches, educators, public health personnel, representatives of organizations interested in amateur and professional sports, representatives of mass publicity media and persons interested in recreation, the outdoors, and the general topic for which the conference was called. Dr. Elmer Hess and Dr. W. W. Bauer attended, invited as individuals. The proceedings of this conference have been published and single free copies are available from the American Medical Association, Bureau of Health Education (for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., price 25 cents).

These proceedings reflect a broad, constructive, and sane attitude toward total fitness, embracing not only its physical but its mental, emotional, moral, and social aspects. They commend the work already being done and recommend that good work be encouraged and that no new agencies be established, particularly at the federal level. Where serious gaps exist, community cooperation is recommended with a maximum of encouragement to existing agencies for the expansion and enrichment of programs already in action.

The presiding officer of the conference, the Vice-President of the United States, stated in effect that the American people are not a nation of "softies" but that considerable improvement in fitness can and should be expected.

The medical profession welcomes this renewed interest in fitness stimulated by the President's conference and the subsequent actions of the President as recommended by the conference. By executive order on the same day that the conference met and reported, the President created at cabinet level a council on youth fitness, consisting of the Vice-President of the United States, chairman, and six cabinet officers (the Secretaries of Defense, Interior, Agriculture, Labor, and Health, Education and Welfare, and the Attorney General). He also implemented a second recommendation of the conference, namely that there be an advisory committee to the President's Council and that this committee be composed of outstanding citizens. Five doctors are included in its membership (Philip S. Barba, W. W. Bauer, Daniel Bergsma, Martha M. Eliot, Hans Kraus). The Committee is meeting at West Point, N. Y., September 9 and 10, 1957.

Almost immediately, a director was appointed for the President's Council on Youth Fitness; he is Shane MacCarthy, J.D., a political scientist and lecturer identified with the Central Intelligence Agency. His functions are to coordinate the work of the council and to encourage activities in youth fitness.

All this has a familiar sound to the medical profession. The early proceedings of the House of Delegates of the American Medical Association have shown an interest in the fitness of American youth since the Association's organization in 1847. This interest took concrete form with the organization in 1911 of a Joint Committee on Health Problems in Education in cooperation with the National Education Association. This committee remains active and influential to this date and has to its credit a large number of publications which have influenced child health, including three books which constitute a trilogy in school health (Health Education, School Health Services, Healthful School Living).

During World War II, the American Medical Association, at the invitation of the United States government, participated in a Joint Committee on Fitness. The activities of this committee were in high gear when the war came to an end and the government withdrew its membership on the committee, leaving an American Medical Association contingent of five members. The then President of the American Medical Association, Dr. R. L. Sensenich, requested the Bureau of Health Education to make suggestions for a continuation of the Association's interest in health and fitness of American youth. The bureau proposed a plan for concentrating on the health of the school-age child as a key population group through which the greatest impact on the fitness of American youth could be made with the smallest amount of expense and largely through existing organization channels. This service was established experimentally in 1947, and an educator and a physician were added to the staff of the bureau to initiate the work.

For 12 years, the consultants in school health, augmented in 1956 by a woman physical educator, have ranged the highways and the byways of the

United States giving aid, counsel, and cooperation in the development of statewide and local school health projects. Extensive improvements in measures for the protection and promotion of the health of school-age children have resulted and there is a ground swell of interest which promises to project this progress consistently into the future. The Association never presented a plan of its own, but was ready at all times to act as an exchange of information and a cooperating and counseling agency.

This fall, there will be held the sixth Biennial Conference on Physicians and Schools, which has become a traditional Highland Park Conference whose veteran participants belong to the "School Bell Club," having attended all conferences to date.

The Association also has had many other activities looking to the better health and fitness of American youth, including a broad program of health education, campaigns against quackery and charlatanism, the extension of rural health facilities, and medical service plans. Health and fitness aims are nothing new to the medical profession.

Physicians see in the renewed interest stimulated by the President of the United States an opportunity and a challenge. Fitness, according to the medical concept, must be based on essential fundamentals of which the first is good physical and emotional health.

To achieve this end, we must have good nutrition, periodic evaluation of health needs, follow-through efforts to meet these needs, intelligent attention to healthful living at home and in the school; adequate recreation and activity, the development of personal sports, and emotional adjustment to circumstances as they arise. A broad concept of fitness must not exclude the handicapped, who within their limitations must be helped to attain such measures of fitness as are available for them. Indeed, many a handicapped person stands as a luminous example to his fellows, through his achievements in the face of obstacles and discouragement.

Interest by the President of the United States has naturally stimulated great publicity. Everyone, with the remotest interest in fitness, has presented his viewpoint. This is the essence of a democracy and no one should wish that any of these voices be silenced. By the same token, however, the medical profession now faces a challenge to let its own voice be heard. The position of medicine with regard to the fitness of American youth should be clear and unequivocal.

Medicine stands for a broad concept of fitness, as indicated above. Medicine does not discourage activity, sports, competition, or even a reasonable risk of injury. Medicine recognizes that a fractured ankle may leave less of a scar than a personality frustrated by reason of parental timidity over participation in contact sports. Medicine does recognize, however, that there are contact sports which have for their main purpose, rather than competition and victory, injury to the opponent. Medicine recognizes also that there are contact sports and degrees of competition which are too severe for the immature. In standing out against the abuse of highly desirable exercise and highly necessary competition, medicine in no way objects to activity, competition, and risk, in its proper place. All life is a risk and without courage life is not worth living.

Medicine does deplore the fallacious use of the examination statistics from draft registration as a measure of health. These statistics do not take into account the voluntary enlistments nor do they consider deferments or exemptions from military service for reasons other than health; especially industrial, educational, and religious deferments. The statistics are based on fluctuating values and on essential military standards. They are a measure of military availability only and should not be quoted as indexes of the health of the nation's youth.

Medicine agrees with the Vice-President of the United States that American youth is not soft and decadent; it may be out of training but it has the basic health essentials for the quick acquisition of the necessary military skills. Height and weight figures show that our young people are stronger and heavier than any previous generation; the chances of a baby living to attend school are 96 in 100; the chances of a school child finishing his elementary and secondary education are 99 out of 100 on the basis of life and health, exclusive of economic and other considerations. Average length of life and life expectancy at birth are both at a high level. The conquest of diseases and disabilities affecting youth has brought into focus as our principal problem the conditions in the geriatric ages.

The medical profession may be counted upon as always to give its wholehearted cooperation to any worthy project embraced in the President's broad program for the fitness of American youth. By the same token, the medical profession will speak out without fear against any unsound proposals or against any movements which are wasteful, duplicating, and competitive to sound existing programs. The President's program conceived on a national level will be implemented largely on the local level. Physicians will be kept informed of developments through the columns of The Journal and other channels of communication. State and local medical societies have an opportunity and an obligation to make known to their communities their interest and willingness to participate in community action toward the greater fitness of American youth.

ORGANIZATION SECTION

DOCTORS, BROADCASTERS TO SPONSOR CONFERENCE

Representatives of medical societies, radio and television stations, voluntary health organizations, medical schools, and other allied groups are invited to attend a national conference on "How to Use Local Television and Radio in the Health Field" Nov. 7-8 at Chicago's Sheraton-Blackstone Hotel. The two-day conference is being sponsored jointly by the American Medical Association and the National Association of Radio and Television Broadcasters.

In announcing the meeting, Dr. David B. Allman, president of the A. M. A., and Harold E. Fellows, president of the N. A. R. T. B., said: "Public interest programs involving medical subjects are appearing more and more frequently on radio and television. Both broadcasters and physicians want to be sure that such programs are interesting, informative and factually correct. We hope that this meeting will enable those concerned to do a better job."

The fall conference will consist of a morning of general sessions on such topics as "Mutual Obligations in Public Interest Programming" and "How Accuracy and Good Taste Can Be Assured" and two half-days of section meetings. The sections, set up according to size of community, will discuss specific problems and offer broadcasters and medical representatives an opportunity to exchange ideas.

Only a limited number can be accommodated at the conference, so advance registration is advisable. Register by writing the American Medical Association, Department of Public Relations, 535 North Dearborn, Chicago 10, Illinois. No fee for the conference will be charged, but luncheon tickets will be sold.

HONOR FOUR DOCTORS AS ARTISTS

Four physicians, ranking among America's leading amateur artists, have been honored by the selection of their works for the first major national exhibition of professional-quality paintings by business and professional men.

Included in 38 selections by directors of seven major art museums are paintings by Drs. Joseph A. Falzone Jr. and Gustav Highstein, both of Baltimore; Frank Hinman Jr. of San Francisco, and W. Carl Lindstrom of Tulsa, Okla. Their works were previewed in Milwaukee and then placed on exhibit last June 15 in the Merchandise Mart in Chicago before being circulated by the American Federation of Arts on a two-year tour of art museums, leading universities, and civic centers.

Dr. Falzone is a research physician who has been painting for 12 years without benefit of formal art training. He has had award-winning paintings exhibited by the Society of Independent Artists and by the City Art Museum in St. Louis, the Pennsylvania Academy of the Fine Arts, and the Baltimore Museum of Art. Dr. Highstein, a pediatrician, has won two awards in annual exhibitions of the American Physicians Art Association and has been honored also in exhibits for Friends of the Museum, the Sweat Memorial Museum, the Baltimore Museum of Art, and the Corcoran Gallery of Art. Dr. Hinman started painting during World War II while he was a surgeon aboard an aircraft carrier. One of his prize-winning pictures was reproduced in color in *Life* in 1948. He is associate clinical professor of urology at the California School of Medicine. Dr. Lindstrom is an obstetrician and gynecologist who began taking color photographs, and then turned to painting, while serving as a surgeon in Italy during the last World War. For the past year he has been host to classes of professional men who paint as a hobby.

The current art show, entitled "From the Executive's Easel," is sponsored by Manpower, Inc., a nationwide temporary help service. The exhibition is described as "proof that business and professional people are producing exceptional work while utilizing painting as an escape from the strain of business activities."

NEW A. M. A. COMMITTEE ON AVIATION

The Council on Industrial Health of the American Medical Association is forming a permanent Committee to look into aviation medical problems. A decision to create such a body from an *ad hoc* special committee was implemented late in July by the Board of Trustees. It is hoped that members of the original group, headed by Dr. Jan Tillisch of the Mayo Clinic, will serve on the permanent committee. Investigations of the *ad hoc* committee had brought out: 1. There is an acute shortage of qualified air crew medical examiners. Two-thirds of the 180,000 examinations performed each year are done by family doctors. 2. Pilots disqualified for serious medical conditions—including coronary disorders, epilepsy, diabetes, psychoneurosis, and psychosis—have continued to fly. (One medical witness alleged that less than 1% of pilot medical certification is turned down for physical standards which would disqualify 25% of the general population.) 3. Although the five-member Civil Aeronautics Board proposes rules concerned with medical examinations, its organization has no doctor or medical staff.

Formation of the new A. M. A. permanent Committee on Civil Aviation Medical Problems was expected to be accomplished well before the next meeting of the parent Council on Industrial Health, to be held on Oct. 17, according to Council Secretary, B. Dixon Holland.

RURAL HEALTH MEETING IN OCTOBER

How to develop more effective rural health programs will be the chief topic of concern at the A. M. A.'s second study conference to be held on Oct. 4 and 5 for members of state rural health committees. Sponsored by the A. M. A. Council on Rural Health, the conference will again be held at Purdue University.

The opening session will be devoted to a discussion of organizational techniques of statewide rural health committees. Another session will feature representatives of leading farm organizations outlining their health programs. Following this latter presentation will be a discussion of ways that the medical profession and agricultural groups can best work together in developing better health programs. Reservations for this conference should be sent directly to the Student Union, Purdue University, Lafayette, Ind.

SIXTH NATIONAL SCHOOL HEALTH CONFERENCE

The theme of the sixth National Conference on Physicians and Schools to be held Oct. 30–Nov. 2 at the Moraine Hotel, Highland Park, Ill., will be entitled "A Decade of Progress in Fitness." Sponsored by the A. M. A. Bureau of Health Education, the program will emphasize a continuing interest in the health and fitness of children and youth.

More than 60 consultants and resource persons have been selected from the fields of medicine, education, and public health to lead the discussion groups on the physician's role in youth fitness; community coordination; mental and emotional aspects of fitness; dramatizing basic fitness procedures; medical guidance in girls' recreation programs; special health problems in athletics; fitness of school personnel; optimum fitness for youth with special health problems; home and family relations; and food factors in fitness.

As in previous conferences, state medical societies, state health and education departments, and national agencies concerned with school health and health education have been invited to send representatives. State societies should select their delegates and notify the Bureau as soon as possible. In addition, medical associations should encourage state health and education departments to send representatives so that a nucleus of well-informed persons from several professions can lend interprofessional leadership to school health activities within each state.

HOTEL RESERVATIONS FOR THE ANNUAL MEETING

SAN FRANCISCO, JUNE 23-27, 1958

For the convenience and protection of members of the American Medical Association, exhibitors, and guests, there will appear in the advertising section of THE JOURNAL as early as January, 1958, a list of San Francisco hotels, convention rates, and a room reservation form. The Housing Bureau has been instructed to give this form preference in the allocation of rooms that are reserved under contract with the San Francisco hotels, the Convention Bureau, and the American Medical Association.

Physicians attending the several pre-A. M. A. conventions (which are held during the prior week) are also expected to use this form to secure accommodations for the period of these respective pre-A. M. A. meetings.

CONFERENCE ON NUTRITION IN PREGNANCY

The A. M. A. Council on Foods and Nutrition has selected "Nutrition in Pregnancy" as the title of its 1957 symposium to be held Oct. 11 at the University of Missouri Medical Center, Columbia, Mo. Joint sponsors with the A. M. A. are the University of Missouri Medical School and Adult Education and Extension Service and the Boone County Medical Society. The symposium will provide an excellent opportunity for physicians, nutritionists, dietitians, nurses, and others to acquaint themselves with current findings in nutrition and the practical application of these findings to the management of obstetric patients.

Topics to be discussed include the influence of maternal nutritional level on the fetus and infant; metabolic and biochemical changes in normal pregnancy; importance of nutritional state of mother prior to conception; nutrition experiments as an instrument of teratologic research; the effect of the reproductive cycle on nutritional status and requirements; and dietary habits during pregnancy. Epidemiologic studies will be reviewed in a panel discussion.

SPECIAL COMMITTEE ON INFLUENZA

Report of the Council

The following report, prepared by the Council on Drugs at the request of the Special Committee on Influenza, is presented as a matter of scientific information for the medical profession.

Harold C. Lueth, *Chairman.*

ANTIBIOTICS AND INFLUENZA

The explosive outbreak of influenza during the past spring in the Orient, together with its erratic spread to Europe and the Western hemisphere, has recalled to the minds of many physicians the pandemic of influenza of 1918-1919. In the spring of 1918, a mild but widespread and explosive epidemic of influenza broke out in Europe. In many military units on the Western Front, the incidence of influenza reached a rate of 50% within a period of 10 days to 2 weeks. Certain civilian communities in Europe had comparable incidences of this mild type of influenza. The disease, in the spring of 1918, had a very low mortality rate and practically disappeared from the fighting forces and civilian communities by July 1, 1918. However, in September and in succeeding months influenza returned, and all communities in the world except those that were completely isolated (Tristan da Cunha, for example) were stricken by the infection. In its waves in 1918 and 1919, the disease was characterized by (1) a high morbidity rate, (2) an ability to injure the lungs, thus facilitating the invasion of micro-organisms which produced pneumonia, and (3) a high case fatality rate among those patients who developed pneumonia. It has been estimated that 20 to 30 million people died during this pandemic.

The influenza viral infection in the fall and winter of 1918-1919, while prostrating in effect, did not kill in itself except rarely. Pneumonia and its complications produced by beta-hemolytic streptococci, micrococci (staphylococci), pneumococci, influenza bacilli, and rarely by certain other organisms were responsible for the deaths.

There has been a close and disturbing parallel between the outbreaks of influenza which have been observed in Asia during the past spring and which spread to the Western world and the vernal appearance of what was called Spanish influenza in 1918. The question which is agitating the minds of many physicians at the moment is whether they will witness this fall a recrudescence of influenza throughout the world comparable in incidence and severity (as far as secondary infection is concerned) with that which occurred in the winter of 1918-1919.

Should this occur, what policies should guide the physician relative to the prophylaxis and treatment of secondary bacterial infection in patients suffering from influenza? After a careful consideration of this whole problem, the Council on Drugs makes the following suggestions:

1. Since sulfonamides and antibiotics have no therapeutic effect on the viruses of influenza, their use in the primary treatment of influenza would be contrary to good medical practice.

2. Antibacterial compounds such as sulfonamides or antibiotics should not be generally used in the prophylaxis of bacterial infection in patients ill with influenza. The prime reason for this recommendation is to prevent the development of disease-producing strains of micro-organisms which would be resistant to sulfonamide or antibiotic therapy. The secondary reason is to obviate the development of reactions of sensitivity or of direct toxicity to antibiotics or sulfonamides. The possible exceptions to this injunction are (*a*) pregnant women, debilitated infants, and older individuals, (*b*) patients being treated for other bacterial infections with sulfonamides or antibiotics who develop influenza, and (*c*) patients suffering from chronic, nonallergic respiratory tract disease.

3. All patients ill with influenza in whom it has been demonstrated that secondary bacterial infections have developed should be treated with a sulfonamide or antibiotic of choice. In general, the following recommendations can be made as to the choice of sulfonamides and antibiotics: (*a*) pneumococcic pneumonia: penicillin, broad-spectrum antibiotic, sulfonamide; (*b*) beta-hemolytic streptococcic pneumonia: penicillin, broad-spectrum antibiotic, sulfonamide; (*c*) influenzal bacillary pneumonia: broad-spectrum antibiotic; (*d*) micrococcic pneumonia: this will be a real problem because of the resistance of strains of these organisms to sulfonamides and antibiotics. Careful testing of the sensitivity to the various antibiotics of micrococci isolated from patients ill with pneumonia should be done and the choice of the antibiotic made upon data garnered from these tests. If the condition of the patient is so grave as to necessitate immediate therapy, massive intravenous doses of penicillin plus 1 Gm. of streptomycin per day may be administered while the results of antibiotic sensitivity tests are being awaited.

Finally, a word of caution should be raised relative to the hospitalization of patients ill with influenza. It is the carefully considered opinion of the Council on Drugs that patients ill with uncomplicated influenza should be treated at home. It is a well-demonstrated fact that in many hospitals a high percentage of personnel such as doctors, nurses, and attendants may be carriers of micrococci which are resistant to antibiotic or sulfonamide therapy. A patient ill with primary influenza who is introduced into such an environment would certainly be in jeopardy of contracting a micrococcic pneumonia which could not be cured by antibiotic or sulfonamide therapy.

CURRENT STATUS OF ASIAN INFLUENZA

The following report has been compiled from late data furnished to the American Medical Association's Special Committee on Influenza by the Communicable Disease Center of the Public Health Service, U. S. Department of Health, Education, and Welfare. Progress reports on Asian influenza will be transmitted to the profession regularly as long as there is a possibility of an epidemic.

Harold C. Lueth, *Chairman.*

There appears to be an increase of influenza-like illness in further civilian groups. A school-centered outbreak has occurred in Mississippi and a housing development has been affected in California. A Florida community also appears to have experienced an increased incidence of influenza-like illness in the past week.

Outbreaks and cases of influenza due to Asian strains were confirmed during the period June 1-Aug. 22 in the following locations: California (San Francisco, San Diego, Monterey, Davis, San Mateo, Los Angeles), Virginia (Norfolk), Rhode Island (Newport), Hawaii, Ohio (Cleveland), Iowa (Grinnell), Utah (Salt Lake City), Kansas, (Topeka), Maryland, Kentucky (Louisville, Morris Fork), Pennsylvania (Valley Forge, Lancaster, Old Forge), Texas (Corpus Christi, Bexar County), Washington (Seattle), Nebraska (Omaha), Florida (Jacksonville, Miami, St. Petersburg), Michigan (Calhoun County, Bay County, Coldwater), Louisiana (Grant Parish, Tangipahoa Parish, New Orleans), New Jersey (Burlington County), New York (Cayuga County, New York City), Oregon.

Reactions to Influenza Vaccine Containing Asian Strain Virus

Of 239 volunteers vaccinated with monovalent Asian strain influenza vaccine, 158 were examined and questioned, for the purposes of this report, concerning postvaccination reactions. Injections were given intramuscularly over the deltoid area, and subjects were approached two or three days later. Vaccination groups included one each at 50, 100, and 200 CCA (chick cell agglutination) units and an equal number of saline and aluminum phosphate adjuvant subjects at each dosage level.

The volunteers were examined or questioned for evidence of local erythema and pain or swelling and any other postvaccination symptoms. *Any* affirmative reply was considered a positive reaction regardless of whether mild or severe. Care was taken to differentiate immediate injection pain and venipuncture discomfort from postvaccination signs and symptoms.

Reaction to Monovalent Asian Strain Influenza Vaccine

Reaction	% of 48 People Questioned After Dose of 50 CCA Units	% of 53 People Questioned After Dose of 100 CCA Units	% of 57 People Questioned After Dose of 200 CCA Units
Fever	6	8	14
Generalized pain in extremity*	21	23	54
Local swelling*	2	11	18
Local pain at injection site*	17	19	42

* Includes mild through severe reactions.

With the one exception noted below no severe reactions occurred. Symptoms were primarily those noted in the table and, with rare exceptions, lasted no longer than 12 to 24 hours. An increase in reactions was seen as the dosage of vaccine increased. Among those who had febrile reactions, only three were concerned enough to actually record their temperatures. Other symptoms mentioned in a few instances included malaise, myalgia, and headache. These were unrelated to dosage of vaccine. Differences in reaction to saline and adjuvant vaccines were not significant.

A single subject experienced sufficient fever, malaise, and myalgia to lose one-half day of working time. Otherwise, the symptoms noted were so mild that normal clerical activities were not interfered with or the subjects made unduly uncomfortable.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

In order to furnish the medical profession with a brief historical résumé of the factors underlying the development of Residency Review and Conference Committees as well as the significance of their role in the evaluation of graduate medical education, the Council has authorized publication of the following statement. Edward L. Turner, M.D., *Secretary.*

BACKGROUND AND DEVELOPMENT OF RESIDENCY REVIEW AND CONFERENCE COMMITTEES

During the first two decades of the current century the Council on Medical Education and Hospitals of the American Medical Association was primarily concerned with the improvement of undergraduate medical education. Although it was apparent that this area would be a constant field of interest and concern, the Council recognized during the second and subsequent decades the need for increased emphasis on and improvement of advanced education and training beyond medical school. There was growing conviction in medicine that the learning process must continue throughout life and, as Ray Lyman Wilbur stated, "The doctor who stops learning goes backward."

Those concerned with undergraduate education during the earlier decades of the century were so deeply involved in its improvement that the medical schools themselves for many years evidenced little or no interest in graduate and continuing education. However, the terms "resident" and "resident physician" have been utilized in the United States for well over a hundred years, although at first they were more or less interchangeable with the term "intern." In 1889 Johns Hopkins Hospital instituted the use of the term "resident" to identify the young physician who, having completed an "internship," continued his training in a hospital so as to perfect himself in a special field of medicine. Thus at that time the educational aspect of graduate experience differentiated the resident from that of the salaried house officer whose function was to aid the medical staff in the care of patients, with little or no emphasis on graduate education.

During the 10 years following the Flexner Report, which appeared in 1910, along with the significant advances that took place in undergraduate medical education, increased attention was focused on education beyond medical school. The first major step in this direction was taken by the Council on Medical Education in the initial listing of hospitals approved for internship in 1914 and the survey of graduate medical schools and graduate education which it conducted in 1913-1915. As Johnson has stated, this survey and a subsequent one in 1919 indicated that the existing facilities for advanced training at that time were entirely inadequate. The demand by physicians for advanced training of high quality was not being met, proprietary schools and postgraduate schools of doubtful character were too plentiful, and there was little index of medical school interest in these fields.

Development of Specialty Boards

In 1917, to aid in insuring against the dangers of shortcuts to specialization, the ophthalmologists created the first of the specialty boards. This represented the first effort on the part of a specialty group to determine and uphold the basic requirements in education and experience needed to qualify as an acceptable candidate for examination and certification.

Wilbur reported that in 1919 there existed two large groups of physicians seeking study beyond medical school: those desiring continuing study for short periods and others who desired longer and more exacting preparation to fit themselves for special practice. Both groups involved a total of 10,000 physicians at that time. Approximately 6,000 were seeking short-term study and about 4,000 were engaged in prolonged training directed toward specialization. The Council became especially concerned with the latter group seeking to prepare for specialization, as it was felt that both the public and the profession should be protected against shortcuts to specialization, particularly in surgery, where abbreviated preparation was already being condemned.

Consequently, in 1920 the Council organized 15 committees of nine members each to study and "to recommend what preparation was deemed essential to secure expertness in each of the specialties." It is of interest to note that at that time 11 clinical and 4 basic science areas were included in the committee assignments. The clinical fields included: (1) internal medicine, (2) pediatrics, (3) neuropsychiatry, (4) dermatology and syphilology, (5) surgery, (6) ophthalmology, (7) otolaryngology, (8) orthopedic surgery, (9) urology, (10) obstetrics and gynecology, and (11) public health and hygiene. The basic medical science committees included: (1) anatomy, (2) physiology, (3) pharmacology and therapeutics, and (4) pathology-bacteriology. The 11 clinical fields and one of the original basic science areas subsequently have been included in the 19 American Specialty Boards which exist today.

The organization of these committees by the Council in 1920, therefore, essentially created the pattern underlying the establishment of the specialty boards in medicine and represented the forerunners of the American Boards. Initially the committees submitted widely divergent recommendations in regard to the minimum time requirements for specialization in the different areas. This varied from six months to three years, in contrast to the usual present-day requirements of three or more years beyond the internship. By 1923, the House of Delegates of the American Medical Association, on recommendation of the Council, adopted standards of specialty training referable to eligibility, program supervision, qualifications of instructional staff, and such factors as hospital, dispensary, laboratory, library, and museum facilities. The original statement in regard to the nature of instruction is of interest, for it included: "a) Review courses in anatomy, pathology and the other basic preclinical sciences which apply to the respective specialties; b) clinics in which students can have the opportunity personally to examine patients in hospital wards and outpatient departments and in which various therapeutic and operative procedures can be demonstrated; c) courses of operative and laboratory technic, and d)—to be assigned when the student's previous training will warrant—assistantship in which, *under the supervision of a physician who is recognized as an expert in the particular specialty, he can gradually assume responsibility in the diagnosis and therapeutic or operative treatment of the sick.* Opportunity should be provided also for research work in the chosen specialty bearing on both the fundamental sciences and clinical fields."

One of the most important features of this original statement is still the core of all sound programs of graduate education and training today, namely, the gradual upgrading of responsibility under competent supervision to the point where the physician on completion of his residency should be able to assume full professional responsibility in the diagnosis and in the determination of proper therapeutic procedures.

By 1928 these basic standards, after elaboration and redefinition, were incorporated into the documents of the Council and approved by the House of Delegates under the title of Essentials of Approved Residencies and Fellowships. The year previously (1927) the Council presented its first listing of hospitals approved by it for residency training in the various specialties. In that year. 278 hospitals provided 1,776 residencies. The significance and rapidity of development of specialty training is supported by the rapid growth of residency training since that time as summarized in table 1.

In 1933 the House of Delegates of the American Medical Association adopted a resolution authorizing the Council on Medical Education and Hospitals "to express its approval of such special examining boards as conform to the standards of administration formulated by the Council" and providing for the employment of the "Machinery of the American Medical Association, including the publication of its Directory, in furthering the works of such examining boards as may be accredited by the Council." The Council, therefore, was delegated the responsibility of approving on behalf of the American Medical Association those boards whose organization and administration meet with its approval. This responsibility was not limited to initial approval of an examining board but also to its continued approval by the Council as implied in the listing of such boards in the Directory of Approved Internships and Residencies and other official American Medical Association publications.

During 1933-1934 the Advisory Board for Medical Specialties was organized. From the beginning it has included representatives from each of the approved boards, to "act in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists." The Council on Medical Education and Hospitals has maintained close liaison with the Advisory Board for Medical Specialties through joint meetings and frequent conferences. During the past few years the Council and the Advisory Board have co-sponsored one of the major sessions at the Annual Congress on Medical Education and Licensure.

TABLE 1.—*Data Showing Rapid Growth of Residency Training Programs*

Year	No. of Hospitals	No. of Residency Positions
1927	278	1,776
1930	338	2,028
1935	392	2,564
1940	587	5,120
1945	736	7,666
1950	1,079	18,669
1955	1,201	25,841
1956	1,211	27,835

The "Essentials for Approved Examining Boards in Specialties" originally adopted by the House of Delegates in 1934, and as subsequently revised in keeping with developments indicates that the purposes and functions of a specialty board are: "a) To assist in improving the quality of graduate education in that field, b) to establish minimal educational and training standards in the specialty, in conformity with the general provisions of the 'Essentials,' c) to determine whether candidates have received adequate preparation as defined by the Board, d) to provide comprehensive examinations to determine the ability and fitness of such candidates, and e) to certify to the competence of those physicians who have satisfied the requirements of the board, as a protection to the public and profession."

The "Essentials" then outlined the general organization of a specialty board and the desirability of incorporation of specialty segments or subspecialties within the framework of major boards rather than developing independent boards. The "Essentials" also outlined the general qualifications of candidates for admission to specialty board examination and the mechanisms of establishing an acceptable specialty board, rendering approval in the specialties and basis for withdrawal of approval of a specialty board.

By 1949 there were 19 Approved Examining Boards in Medical Specialties as indicated in table 2. The American Boards of Internal Medicine, Pediatrics, and Surgery, in addition, certify in certain subspecialties and the American Boards of Obstetrics and Gynecology, Otolaryngology, Pathology, Preventive Medicine, Psychiatry and Neurology, and Radiology offer special certification in various areas of their respective fields. Table 2 indicates the names of the present approved examining boards in the medical specialties (1956), the date of their activation, total certificates awarded to June 30, 1956, and the various areas of special certification which have developed.

TABLE 2.—*Approved Examining Boards in Medical Specialties—1956*

Name of Board	Yr. of Activation	Total Certificates Awarded to June 30, 1956
American Board of Anesthesiology	1937	1,503
American Board of Dermatology	1932	1,713
American Board of Internal Medicine	1936	10,470
American Board of Neurological Surgery	1940	666
American Board of Obstetrics and Gynecology	1930	4,915
American Board of Ophthalmology	1917	4,464
American Board of Orthopedic Surgery	1934	2,731
American Board of Otolaryngology	1924	5,202
American Board of Pathology	1936	2,951
American Board of Pediatrics	1933	5,723
American Board of Physical Medicine and Rehabilitation	1947	302
American Board of Plastic Surgery	1937	359
American Board of Preventive Medicine	1948	1,684
American Board of Proctology	1949	246
American Board of Psychiatry and Neurology	1934	5,601
American Board of Radiology	1934	5,366
American Board of Surgery	1937	6,984
Board of Thoracic Surgery (Affiliate of the American Board of Surgery)	1949	625
American Board of Urology	1935	2,195
Totals		63,727
Certification in Subspecialties		
American Board of Internal Medicine		
Allergy		155
Cardiovascular Disease		563
Gastroenterology		354
Pulmonary Diseases		249
Totals		1,271
American Board of Pediatrics		
Allergy		71
American Board of Surgery		
Proctology		81*
Totals		1,423
Special Certification		Total Certificates Awarded to June 30, 1956
American Board of Obstetrics and Gynecology		
Obstetrics		22
Gynecology		13
Totals		35
American Board of Otolaryngology		
Endoscopy		4
American Board of Pathology		
Pathological Anatomy		1,467
Clinical Pathology		389
Pathological Anatomy and Clinical Pathology		1,059
[illegible] Anatomy and Clinical Microbiology		1
[illegible] and Clinical Chemistry		1
[illegible]		2
Neuropathology		12
Clinical Microbiology		14
Hematology		2
Clinical Chemistry		4
Totals		2,951
American Board of Preventive Medicine		
Public Health		1,219
Aviation Medicine		301
Occupational Medicine		164
Totals		1,684
American Board of Psychiatry and Neurology		
Psychiatry		4,268
Neurology		366
Psychiatry and Neurology		967
Totals		5,601
American Board of Radiology		
Radiology		3,635
[illegible]		950
[illegible]		514
[illegible]		157
[illegible] Roentgenology		4
[illegible]		7
[illegible]		47
[illegible]		16
X-Ray and Radium Physics		6
Medical Nuclear Physics		
Totals		5,366

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* Independent Board established in 1949.

Since the American Boards, as well as the Council were concerned with the development of high-grade educational services, it was recommended in 1939 that a cooperative plan be developed for the joint study and appraisal of residencies and fellowships in the various specialties. This plan provided (*a*) that, after conference with the respective specialty board, a suitable application blank be prepared in triplicate so that one copy would be available to the Council, one to the specialty board, and one for the hospital files, (*b*) that an inspection be carried out by the Council's staff to confirm and amplify the information submitted by application, (*c*) that an inspection report be prepared emphasizing objective data that could subsequently be utilized in the evaluation of the educational program, (*d*) that copies of the application and inspection report be forwarded to the secretary of the board for further evaluation, and (*e*) that subsequently the application be submitted to the Council with the recommendation of the Board.

Most of the specialty boards soon entered into cooperation with the Council. In a short time all existing boards except ophthalmology were taking an active part in the study and evaluation of residency training programs. The American Board of Ophthalmology cooperated in supplying information to the Council but did not consider itself an evaluating or approving agency.

It is important, in connection with background information leading to the establishment of residency review and conference committees on graduate education, that the respective roles of the College of Surgeons and the College of Physicians, as well as the role of the Council on Medical Education and Hospitals in improving and evaluating residency education and training be summarized.

Development of Conference Committee on Graduate Training in Surgery

Almost from its foundation in 1913 the American College of Surgeons evidenced interest and concern in the evaluation and approval of hospitals and in 1918 began its hospital standardization program. It employed a hospital inspection staff and pursued an application of more strict compliance with requirements pertaining to staff organization, hospital records, and staff meetings than was required by the Council for hospital registration at that time. The American College of Surgeons did not participate in the evaluations and approval of intern training programs. In 1928 the Board of Regents of the College of Surgeons indicated its interest and concern in graduate training in surgery from the standpoint of its relation to Requirements for Fellowship in the College as well as in relation to the provision of facilities to enable surgeons to achieve competency in surgery and the surgical specialties

In 1937 the College of Surgeons instituted a survey of selected hospitals, and in January, 1939, it published a list of hospitals in the United States and Canada approved for graduate training in surgery. At the same time, a minimum standard was prepared which became known as "Fundamental Requirements for Graduate Training in Surgery." These "Fundamental Requirements" were oriented toward acceptable programs providing three or more years of organized, institutional graduate training—except in ophthalmology and otolaryngology in which two years were accepted if separate training programs were maintained. They also outlined the staff organization, educational committee, supervisory responsibilities, provision for basic medical science instruction, clinical facilities for both inpatient and outpatient activities, library, staff meetings, and conferences, etc.

The main differences between the Council's "Essentials of Approved Residencies and Fellowships" and the College of Surgeons' "Fundamental Requirements for Graduate Training in Surgery" at that time resided in the facts that (1) the American College of Surgeons approved only hospitals offering the full three-year program of residency training (except for ophthalmology and otolaryngology) and (2) in program evaluation the College placed greater emphasis on provisions for formal training in the basic medical sciences. During the period from 1937, the Council and the College conducted their respective programs and it was not until February, 1948, that a Joint Committee representing the American College of Surgeons and the American Medical Association met to discuss problems of mutual interest in this field of hospital surveys and the evaluation of graduate medical education and training. Representatives of some of the American Boards, the Advisory Board of Medical Specialties, and the Council on Medical Education and Hospitals of the American Medical Association were also present.

It was the sense of this general meeting that desirable economies of effort, time, and money could be accomplished if the American College of Surgeons and the Council on Medical Education and Hospitals of the American Medical Association would organize a single acceptable survey service which both organizations could support and be guided by and that, in addition, the joint procedure should be concerned chiefly with educational and organization programs of hospitals for residency training which should be supplemented by professional evaluation by the boards concerned. A subcommittee of the Joint Committee on Hospital Problems was appointed with representatives from the American College of Surgeons, the American Medical Association, the Specialty Boards (Orthopedic Surgery and Surgery), and the Advisory Board for Medical Specialties, which met in April, 1948. This subcommittee, in effect, became the forerunner of the Conference Committee on Graduate Training in Surgery.

Minutes of the Joint Committee on Hospital Problems held in July, 1949, include the following resolutions:

> Resolved, That mutually acceptable standards of residency training in surgery and the surgical specialties be drafted by a committee appointed by the Chairman of the Subcommittee on Hospital Problems and representing the Council on Medical Education and Hospitals and the American College of Surgeons; *the standards so formulated to be referred to the appropriate bodies of the parent organizations for ratification.*
>
> Be it further resolved, That a single uniform list of institutions approved for residency or graduate training in surgery and the surgical specialties be published by the Council on Medical Education and Hospitals and the American College of Surgeons. The Committee authorized in the previous resolution is also charged with formulating recommendations as to the specific procedures to be followed in preparing and publishing such a list.
>
> Be it further Resolved, That the Chairman of the Subcommittee on Hospital Problems be authorized to appoint a committee to study ways and means of effecting a single survey service and that this committee report back to the Subcommittee on Hospital Problems at the earliest possible date.

After a series of committee meetings, conferences, and discussions, a meeting was held in May, 1950, attended by representatives of the American Medical Association, the American College of Surgeons, and the American Board of Surgery. The purpose of this meeting was to initiate the actions that had been given approval by the American Board of Surgery, the American College of Surgeons, and provisional approval of the Board of Trustees of the American Medical Association, as it was believed essential to get the coordinated residency approval program under way.

The minutes of this meeting clearly state that *it is the purpose of this conference to encourage the adoption by the sponsoring agencies of uniform standards for residency training in surgery, to sponsor a single inspection service for hospitals offering such training, and to approve and publish a list of acceptable residency programs.*

During the same meeting it was determined that the committee representing the American Board of Surgery, the American College of Surgeons, and the Council on Medical Education and Hospitals of the American Medical Association be called the Conference Committee on Graduate Training in Surgery.

The development of tripartite committees for the surgical specialties has been supported by both the Council and the College.

After further study and negotiation between the Council on Medical Education and Hospitals, the American College of Surgeons, and the American Board of Surgery, a "Joint Commission on Accreditation of Residencies in (General Surgery, Otolaryngology, etc.)" was recommended in 1953. Because of possible confusion from the use of the appellation "Joint Commission" the name reverted to the "Conference Committee on Graduate Training in Surgery." The Conference Committee on Graduate Training in Surgery is a tripartite committee with equal representation from the Council on Medical Education and Hospitals, the American College of Surgeons, and the American Board of Surgery. As currently agreed, the chairman and vice-chairman are representatives of the American College of Surgeons and the American Board of Surgery, with the provision that both of them should not be from the same body and that the chairmanship should alternate between the organizations at intervals of two years. The secretary of the committee is a representative of the American Medical Association (currently a member of the staff of the Council on Medical Education and Hospitals as ex officio member).

Development of Residency Review Committee in Internal Medicine

In internal medicine the original movement to initiate a cooperative effort in graduate education and training stemmed from a meeting of the Board of Trustees of the American Medical Association and the Board of Regents of the American College of Physicians in April, 1939. Subsequently, plans for the formation of a Conference Committee on Graduate Training in Internal Medicine (now the Residency Review Committee in Internal Medicine) were developed in May, 1939, at a meeting attended by representatives of the Council on Medical Education and Hospitals, the American Board of Internal Medicine, and the American College of Physicians. The first organizational meeting was held in February, 1940. This Conference Committee appraised residencies through joint evaluation of hospital educational programs in internal medicine, meeting two or three times annually and functioning effectively and to mutual advantage until World War II interrupted its activities. During World War II the Council continued the approval of residencies in Internal Medicine in cooperation with the American Board of Internal Medicine.

A movement to reactivate the Conference Committee on Graduate Training in Internal Medicine originated with the American College of Physicians in 1947. At its meeting in June, 1947, and on two subsequent occasions, the Council on Medical Education and Hospitals voted to reactivate the Committee. In June, 1948, at the suggestion of the Board of Regents of the American College of Physicians and on invitation of the Council, a joint meeting was held in Chicago, at which time all three organizations (the Council, the College, and the American Board) agreed to reactivate the Conference Committee. The organizational meeting for Reactivation was held in February, 1949.

It is important to note that the two primary functions of this committee were indicated to be (1) the evaluation of residency programs in internal medicine, including new applications and reevaluation of approved programs, and (2) the establishment of standards for residency training in internal medicine. With regard to the latter, *the Committee's function was indicated to be recommendation to the sponsoring organizations.* Both Council and College agreed to these basic functions and the American Board of Internal Medicine in October, 1949, indicated its concurrence in granting authority to the Conference Committee to act also for it in the matter of residency approval and in the assignment of time credit for each residency.

In 1953 the Conference Committee on Graduate Training in Medicine officially changed its name to Residency Review Committee in Internal Medicine, in keeping with the belief that this name more adequately described its activities. This committee functions as a tripartite organization.

Residency Review Committees in Other Specialties

Obviously as an outcome of the development of the Conference Committee on Graduate Training in Surgery and the Residency Review Committee in Internal Medicine, there was increasing interest in the establishment of Residency Review Committees in each of the specialties with which the Council was collaborating. In the fall of 1952, therefore, a proposal was made to the Council that such committees or boards be developed in cooperation with each of the specialty boards, so that they could act for both groups in the approval of hospitals for residency training. It was proposed that each organization (the Council and the specific specialty board) would appoint representatives to the Residency Review Committee who would not necessarily be members of either organization but who would be specialists in the field concerned who were interested and experienced in residency training. The proposal suggested that administrative procedures for such committees be established in the office of the Council, which would have the secretarial representative, and that the chairman be selected from the Board representation in each instance. The proposal was endorsed by the Council and authority given to communicate with the Advisory Board for Medical Specialties and also with the respective boards (other than Surgery and Internal Medicine) as to their interest in such a development.

By May, 1953, five specialty boards had expressed their interest in establishing Residency Review Committees (orthopedic surgery, otolaryngology, pediatrics, proctology, and radiology), and subsequently committees have been established in all areas except obstetrics and gynecology, pathology and thoracic surgery. Although most of the Residency Review Committees are bipartite groups with representatives from the Council on Medical Education and Hospitals and the Specialty Board concerned, Internal Medicine, Surgery, and the Surgical Specialties of Otolaryngology and Plastic Surgery function as tripartite committees. Thus the Surgical Specialty Committees referred to also include representatives of the American College of Surgeons. The Council, in cooperation with the American Academy of General Practice, has established a Residency Review Committee in General Practice in an effort to assist in the elevation of graduate education and training in this field outside of the specialty areas.

The Residency Review and Conference Committees thus essentially represent cooperative partnerships through which the Council on Medical Education and Hospitals and the various specialty boards, the American College of Surgeons, and the American College of Physicians are endeavoring to conduct an objective and constructive program of accreditation in graduate medical education.

MEDICINE AND THE LAW

FOREWORD

This is the first in a series of six articles dealing with the necessity for and proper format of certain medicolegal forms. The subjects to be covered are (1) consent to operations and other medical procedures; (2) patient's right to privacy; (3) confidential communications and records; (4) artificial insemination; (5) the physician-patient relationship; and (6) autopsy.

This material has been prepared and will be published in book form by the Law Department of the American Medical Association under the title "Medicolegal Forms with Legal Analysis." The book will include extensive legal citations and a substantial number of additional forms which have not been included in this series of articles.—ED.

Many physicians and hospitals throughout the United States do not follow the practice of requiring the signing of appropriate medicolegal forms in situations where experience has shown that the signing of such forms might have prevented a law suit. In other instances, inadequate medicolegal forms are in daily use. For example, "blanket" consent forms which purport to give the physician unlimited authority and discretion without specifying the particular operation contemplated are used extensively. The use of such forms has given rise to professional liability claims charging the performance of an operation different than the one for which consent was obtained. The courts have construed blanket consent forms to permit only the procedures which were orally agreed upon. In the absence of a consent form that describes within reasonable latitude the nature of the operation or treatment to be performed, a jury can very easily choose to believe the "forgetful" patient whose recollection regarding the treatment he authorized has been dimmed by time or circumstances.

In 1936, an article entitled "Authorization of Physical Examinations, Treatment, Operations, and Autopsies" by Dr. William C. Woodward was published in THE JOURNAL (106:33-40 [Jan. 4]). The present article and the five to follow have a twofold objective: (1) to expand and bring up to date the subject matter covered by Dr. Woodward and (2) to provide miscellaneous medicolegal forms of authorization and consent which physicians and their attorneys may adapt to their own needs.

In preparing these forms for publication, no effort has been made to provide complete uniformity, even with respect to details or format. Generally, the variations which exist do not have any particular legal significance. For example, some of the forms call for the addresses of the signer and the witnesses. Dependent upon local preference and circumstance, it may be preferable to include such addresses in a consent form. On the other hand, where the physician or the hospital already has this information in its records, it would be unessential. It may not be necessary to include the address of an employee witness since this information is usually available elsewhere. When the patient is accompanied by a friend or relative, it is a good policy to have this person sign as a witness and furnish his address, which may be stated either in the form or elsewhere in the patient's record. In these instances it is also desirable that an employee of the physician or hospital sign as a second witness.

If the patient is a minor, and someone else signs the form on his behalf, the relationship, if not apparent, should be stated in the consent form.

In our opinion, revised and up-to-date medicolegal forms should be available to physicians and should be executed by the patient in the physician's office, whenever circumstances permit, even though the hospital may also require the patient to sign similar consent forms. Local legal counsel should be consulted to make such changes in the suggested forms as are necessary to satisfy the laws of the jurisdiction.

Although the text and forms have been prepared to help physicians and hospitals, they are, at best, a poor substitute for competent local legal advice.

CONSENT TO OPERATIONS AND OTHER PROCEDURES

Assault and Battery.—Authority is necessary before a physician may legally examine or treat a patient. A physician who operates upon a patient without having authority to do so commits an assault and battery for which he may be prosecuted criminally or held civilly liable in damages. If the patient upon whom the unauthorized operation was performed is unable to prove that any actual damage was caused by the operation, he will usually be able to recover only nominal damages. However, the fact that the medical profession has not yet discovered the purpose served by the organ removed will not necessarily limit the patient's recovery to nominal damages; pain and suffering is an element of damages in assault and battery and some pain may be presumed to occur in the course of any operation or in the course of recovering therefrom. It is no defense that the unauthorized operation was performed with due skill and care inasmuch as negligence is not an element of this cause of action. Authority for the performance of an operation may arise out of a legal duty or out of the consent of the patient or some one authorized to act in his behalf. In an emergency, authority is implied on the basis that it would probably have been granted.

Authority Provided by Law.—Some states provide, by statute, for the eugenic sterilization of feebleminded persons and habitual criminals. If the law under which the operation has been authorized is a valid, constitutional law, and if the procedure leading up to the order for sterilization has been in conformity with that law, and if the operation is performed in accordance with the law and without negligence, the physician authorized to perform the operation incurs no personal liability in performing it even over the objection of the person upon whom he operates. Similarly, statutory authority protects physicians in charge of state mental institutions, prison physicians, and health officers charged with the enforcement of vaccination and quarantine laws. The conduct of all such officers is subject to review by the courts. If they act beyond the scope of their authority, or if they act in an unlawful manner, they are liable for the payment of damages and may be subject to criminal prosecution.

Authority Provided by Consent.—Usually authority to operate arises from the valid consent of the patient or some one legally authorized to act in his behalf. It should be noted that even a valid consent is no defense in an action for professional negligence. The consent given may be either express or implied and, if express, it may be either written or oral. The consent given must be an informed consent with an understanding of what is to be done and of the risks involved. The procedure involved and its attendant risks should be explained to the patient in understandable nontechnical terms. The consent given may be invalid (*a*) because the act consented to is unlawful, or contrary to public policy, or (*b*) because the consent was given by one who had no legal right to give it, or (*c*) because it was obtained by misrepresentation or fraud.

In order for a consent to an operation to be valid, it must be the rational act of a qualified mind. The consent of the patient to the operation is sufficient, if he (*a*) has attained his majority and (*b*) is, at the time of giving consent, competent to understand the nature and purpose of the operation proposed and the risks involved. The consent of the husband to an operation on his wife is not necessary; the consent of the wife is sufficient authority. Nevertheless, it is advisable to have the spouse join in the consent whenever practicable. It is particularly desirable to do so if the operation involves danger to life, may destroy or limit sex functions, or may result in the death of an unborn child. A person who has attained his majority and is of sound mind is presumptively qualified to give or withhold consent. The presumption may be rebutted, however, by evidence showing that when the consent was given the party was drunk, or under the influence of drugs, or delirious, or comatose or otherwise incapable of exercising rational judgment. Under such circumstances the law will infer consent if the patient's life was at stake and there was no one present to give consent in his behalf. The fact that a patient is being treated free or at the expense of some one else does not do away with the necessity for obtaining his consent.

In agreeing to perform the operation, the physician does not, in the absence of a special contract, guarantee particular results or to cure. The physician warrants only that he possesses the degree of knowledge and skill ordinarily possessed by a member of the profession in good standing in the community and that he will use that knowledge and skill in the performance of the operation. Although admittedly an unsound practice, a physician may expressly agree to accomplish a particular result or effect a cure. If the physician enters into such a contract and fails to bring about the result or to effect a cure, he is liable for breach of contract even though he used the highest possible professional skill.

Invalid Consent.—Consent to a criminal abortion is void because such an operation is unlawful. Consent to an experimental operation that will greatly endanger the life of the patient and which is not intended to relieve or cure his illness or injury, but solely to advance the science and art of medicine, is usually regarded as contrary to public policy and therefore void. In theory, at least, the harm that might be done to society by such experimentation outweighs its possible benefits. Treatment involving an element of experimentation may properly be administered only with the full knowledge and consent of the patient or those legally responsible for him, and then only if the treatment does not vary too radically from the accepted methods of medical practice.

With reference to human experimentation, the House of Delegates of the American Medical Association in 1946 adopted the following statement set forth by the Judicial Council: "In order to conform to the Ethics of the American Medical Association, three requirements must be satisfied in human experimentation (1) the voluntary consent of the person on whom the experiment is to be performed; (2) the danger of each experiment must be previously investigated by animal experimentation, and (3) the experiment must be performed under proper medical protection and management." This statement, of course, assumes the legal prerequisite of therapeutic justification for the treatment undertaken.

An operation for sexual sterilization when such sterilization is not necessary for the cure or prevention of disease or antisocial conduct is generally regarded as contrary to public policy. This view finds strong support in the widespread legislation forbidding the indiscriminate dissemination of information as to how conception may be prevented and the indiscriminate distribution of devices and preparations designed for that purpose. Consent to a sterilizing operation is therefore probably void unless the operation is intended to cure or prevent disease or antisocial conduct or prevent a pregnancy that would endanger life.

Consent Obtained by Fraud.—Purported authority for an operation obtained by misrepresentation or fraud on the part of a physician is not valid authority and affords no protection to the physician. To represent to a patient that an operation is necessary to save life or to preserve health when that is not the case, or that it will give greater relief than there is any reasonable prospect of obtaining, is to perpetrate a fraud on the patient which vitiates his consent. Tactful honesty and frankness on the part of the physician are generally essential.

Minors.—Operations on minors, at least on those who have not attained years of discretion, may be lawfully authorized by the parents or, if there is no parent, by a guardian. If the minor has parents, consent should be obtained from them even though the minor is in temporary charge of some other person. In the instance where the parents are legally separated or divorced, consent on behalf of the child should be obtained from the parent who has legal custody. It is particularly important that consent be obtained when the procedure to which the child is to be subjected is for the benefit of some other person, such as a blood or skin donor.

It is not clear whether valid consent to an operation can be given by a child who has not attained his majority, although he is of sound mind and has attained the age of discretion. The fact that such a child is legally qualified to make a contract for medical services as one of the necessities of life may be construed as authorizing him to consent to an operation, at least when the cost is to be paid by him from his own funds. There may be a conflict, however, between the authority of the parent and the authority of the child, especially if a child is under treatment at the expense of his parents. Such conflicts seldom occur, but when they do they must be settled according to the circumstances of the case and the law of the community. In such cases, it is best that the physician refrain from action until the question of authority is settled, unless immediate medical attention is necessary to preserve the health or life of the child.

A man, and in many states a woman also, attains his or her majority on the day before the 21st anniversary day of his or her birth. In some states the age of majority for women is 18. Presumably, a woman would be regarded, in such states, as having reached her majority on the day before the 18th anniversary day of her birth. In some states the marriage of a minor "emancipates" the minor from parental control and may raise a legal question as to the relative rights of the parents or the emancipated minor where one or the other opposes the operation. In such a case the physician should not act without having first obtained the advice of competent legal counsel.

Consent is sometimes withheld by the parents on the ground that such treatment would be contrary to their religious beliefs or because of ignorance. Where the life or health of the child is in jeopardy, it is suggested that the physician or those interested in the child's welfare report the case to the local prosecuting attorney and to any available child welfare agency, with a view to having them initiate immediate legal action. There are statutes in some states which authorize the juvenile court to order necessary medical and surgical care for a minor whose parent or guardian, when able to do so, refuses to provide it. Pursuant to such statutory authority the courts have issued orders authorizing needed surgical operations and psychiatric examinations, despite the lack of consent on the part of the child's parents. In other states, courts, acting under the general statutes with respect to neglected and dependent children, have deprived the parents of custody and have appointed guardians authorized to provide necessary attention. Some courts have, however, refused to deprive parents of custody when they have refused to provide attention or treatment deemed by some to be necessary.

In determining whether to interfere with the parents' right to the custody and control of their child, the courts weigh the danger of the child's condition against the danger of the operation. Blood transfusions have been ordered, over the objections of the parents, for infants afflicted with an Rh complication. The basis for such court action is that there is only negligible danger in the transfusion while, without it, the child will almost surely die or, if it should live, its mental abilities will be greatly impaired. The court refused to order the amputation of a minor's abnormally large arm which was endangering her general health because the operation involved a serious threat to her life.

Incompetents.—Where the patient is of unsound mind and incompetent to understand the nature, the purpose, and the risks incident to a proposed operation, authority must come, (*a*) if he is a minor, from one or both of his parents, unless a guardian has been appointed for him by the court, in which case it must come from his guardian; or (*b*) if he has attained his majority, from his spouse or legally appointed guardian. An adult not under guardianship who is partially incompetent but sufficiently capable mentally of understanding his need for an operation and the possible consequences may be considered capable of assenting, especially in view of the fact that he is, despite his mental condition, considered in law to be capable of entering into a contract for medical services as a necessity of life. It is, nevertheless, desirable under such circumstances that a relative, or if there is none, some person who has demonstrated a genuine interest in his care and welfare, approve or join in executing the consent.

When an immediate operation is imperative and the patient is unable to consent rationally to the proposed operation, and when delay incident to the obtaining of the consent of some one legally authorized to consent on behalf of the patient involves serious risk to the patient, an operation may be performed on the legal theory of implied consent. The law implies that the patient would, if competent, consent to whatever may be necessary in his own interests. When a surgeon operates under such circumstances he should be prepared to show (*a*) that an immediate operation was necessary; and (*b*) that a lawful express consent could not be obtained from the patient or from any person authorized to act for him, without endangering the health or life of the patient.

Limits of Authority.—Ordinarily, an operation must be performed within the limits of the authority that has been given. The physician may not perform an operation different from that for which consent has been given. The operation must be performed in the manner which has been agreed upon. A consent must be obtained for each individual operation performed. A consent to one operation will not authorize another or later operation, even though the second operation is for the same condition as the first one. Authority may be given, however, for the operating physician to use his own judgment within certain reasonable limitations. It is usually mutually desirable for the physician to request the patient to allow him a reasonable amount of discretion in the performance of an operation. Even in the case of a limited operation, the operating physician must do whatever may be reasonably necessary for the safety of the patient. The ordinary legal implication is that if the patient under anesthesia had known beforehand of the circumstances that make a modification or extension of the operation necessary, or if at the moment he could exercise rational judgment, he would give his consent. Since it is assumed that the patient would consent to that which is for his benefit, the law implies consent in such cases. However, a physician may not, in the course of an authorized operation, perform a different operation or unauthorized supplementary surgery unless a true emergency exists; there must be a condition which if not corrected would be an imminent threat to life or could result in grave and irreparable injury to the health of the patient. It is not enough that the physician thinks that certain procedures will be beneficial to the patient. Also the physician must remember at all times that the patient's consent in no way relieves the physician of his duty to exercise due care in all that he does. Consent to the operation does not authorize any deviation from prevailing standards of care and caution.

Implied and Oral Consent.—An adult patient of sound mind, who knows that he can agree or refuse to submit to an operation, and who knows or has been fully and fairly informed by his physician as to what is to be done, and who then cooperates with the physician, has impliedly consented even though he has not consented in words. Such implied consent is the consent customarily given in routine office practice. Implied consent to operations always involves the possibility of misunderstanding as to the purpose and scope of the undertaking and the difficulty of obtaining proof in the event of a controversy. It is under the legal concept of implied consent that a physician is permitted, in an emergency, to operate on or extend the scope of surgery performed on an unconscious or delirious person who is unable to make his own decision. This situation frequently arises in connection with serious accidents when the patient is unable to act for himself. Of course, if some one is present who has authority to act for the patient or if, without jeopardizing the welfare of the patient, such person can be communicated with before operating, his consent should be obtained.

Oral consent to an operation is ordinarily supplemented by implied consent. For instance, a patient, after orally consenting to an operation, cooperates with the physician in its performance. Like implied consent, oral consent is open to misunderstanding and may be difficult of proof.

Written Consent.—While written consent to an operation is not required by law, it is desirable in order to avoid the misunderstandings that lead to lawsuits and also to facilitate proof when necessary. The prudent physician will demand a written consent or authorization with respect to any operation which involves an element of recognized danger to the patient or which requires hospitalization. No particular form is necessary to give validity to a written consent. The essential requirements are that it state clearly the nature and extent of the operation authorized and that it be signed by a person legally qualified to give consent. The authorization should state who is to be responsible for the administering of the anesthetic and the postoperative care of the patient if these services are to be performed by a physician other than the operating surgeon. The inclusion of the place and date of execution and the signature of a witness are desirable, but only because they tend to facilitate proof. Generally, the more vague and indefinite the terms of the consent, the more specifically it will be construed by the court. Care should be taken to spell out precisely and in the least technical language possible the exact procedure which the physician intends to perform or the particular condition which he seeks to relieve.

Authorizations and consents should be preserved at least for a sufficient period after the operation to cover the entire time within which, under the statute of limitations, a suit may be instituted. The length of the period of limitations varies from state to state.

Although the performance of an unauthorized operation is technically an assault and battery, it appears that an action for such an operation is sometimes governed by the statute of limitations as to malpractice or personal injury rather than by that as to assault and battery.

The physician would be wise to retain the authorizations and consents even after the expiration of the limitation period because the holdings of the courts are not uniform on the question of whether the statute begins to run at the time of the doing of the alleged wrongful act or at the time of its discovery. For minors the limitation period does not commence, generally, until the minor has reached his majority.

If a physician requests a written consent to surgery from the patient at the time the arrangements for surgery are made, the patient will be inclined to inquire as to his condition, the nature of the procedure contemplated, and the attendant risks. Under these conditions there can be no reasonable allegation by the patient later that he was under sedation when he signed the consent form, or that a hospital attendant had stated that the signing of the consent form was a "mere formality." Legally, the physician may rely for his authority upon a consent obtained by the hospital for his benefit, but it is readily apparent that the physician may protect himself best by attending to the details of having the consent form completed, signed, and witnessed in his presence. The use of business methods in dealing with this phase of medicine may reduce the number of liability claims that arise from misunderstandings, from the use of poorly drawn or antiquated medicolegal forms or from failure to use written forms.

Form 1.—*Consent to Operation*

PATIENT .... AGE ....

A. M.
DATE.................................TIME........P. M. PLACE...............

1. I hereby authorize Dr. ....
and whomever he may designate as his assistants, to perform upon ...., the following opera-
(State name of patient or "myself")
tion: ....,
(State nature of procedure(s) to be performed)
and if any unforeseen condition arises in the course of the operation calling in his judgment for procedures in addition to or different from those now contemplated, I further request and authorize him to do whatever he deems advisable.

2. The nature and purpose of the operation, possible alternative methods of treatment, the risks involved, and the possibility of complications have been fully explained to me. I acknowledge that no guarantee or assurance has been made as to the results that may be obtained.

3. I consent to the administration of anesthesia to be applied by or under the direction of Dr. ...., and to the use of such anesthetics as he may deem advisable, with the exception of ....
(State "none", "spinal anesthesia", etc.)

4. I am aware that sterility may result from this operation although such result has not been guaranteed. I know that a sterile person is incapable of parenthood.

5. I consent to the disposal by authorities of the .... Hospital of any tissues or parts which may be removed.

6. I consent to the taking and publication of any photographs in the course of this operation for the purpose of advancing medical education.

7. For the purpose of advancing medical education, I also consent to the admittance of observers to the operating room.

I CERTIFY THAT I HAVE READ AND FULLY UNDERSTAND THE ABOVE CONSENT TO OPERATION, THAT THE EXPLANATIONS THEREIN REFERRED TO WERE MADE, AND THAT ALL BLANKS OR STATEMENTS REQUIRING INSERTION OR COMPLETION WERE FILLED IN AND INAPPLICABLE PARAGRAPHS, IF ANY, WERE STRICKEN BEFORE I SIGNED.

Signature of patient ....
Signature of patient's
husband or wife ....
When patient is a minor or
incompetent to give consent:
Signature of person authorized
to consent for patient ....
Relationship to patient ....
Witness: ....

Note. This is a general form of consent which will apply to various surgical cases by striking out the portions which are inapplicable. Where the anesthesia is to be administered by a nurse anesthetist, the name of the attending surgeon should be inserted in paragraph 3.

Form 2.—*Consent to Disposal of Amputated Part or Organ*

I hereby authorize ....
to preserve for scientific purposes, or for use in grafts upon living persons, or to otherwise dispose of the following named tissues, parts, or organ, ..., of ...., in a proper and suitable
(Name of patient)
manner.

Signed ....
Date ....
Witness ....

Form 3.—*Consent to Treatment*

I, having been fully informed by Dr. ....
of the risks and possible consequences involved in treatment by means of .... for the relief of ...., nevertheless hereby authorize Dr. .... to administer such treatment to me, and agree to hold him free and harmless for any claims, or suits for damages for any injury or complications whatever which may result from this treatment.

Signed ....
Date ....
Witness ....

Note. This is a general form of consent that is intended for use, primarily, in connection with the administration of hazardous drugs and treatment normally provided in the physician's office.

Form 4.—*Consent to Diagnostic Procedure*

PATIENT.. AGE........

A. M.
DATE.......................TIME..........P. M. PLACE.......................

I hereby request and authorize Dr...
and whomever he may designate to assist him to perform upon .... the following
(Name of patient or "myself")
diagnostic procedure: ....
I have been fully informed of the risks and possible consequences involved and that unforeseen results may occur.

Signed ....

The foregoing consent was read, discussed, and signed in my presence, and in my opinion the person so signing did so freely and with full knowledge and understanding.

Witness ....

Form 5.—*Agreement for Blood Transfusion*

To: Dr. ....
(Attending physician)
and.......................................Hospital. Date............19......

1. I hereby request and authorize the administration of a blood transfusion to ....
(Insert "myself" or name of patient)
and such additional transfusions as may be deemed advisable in the judgment of Dr..., the attending physician, or those he may designate to assist him.

2. It is understood and agreed that the attending physician or his assistants will be responsible only for the performance of their own individual professional acts, and that the blood typing and the selection of compatible blood are the responsibilities of those who actually perform the necessary laboratory tests.

3. It has been fully explained that blood transfusions are not always successful in producing a desirable result and that there is a possibility of ill-effects such as the transmission of infectious hepatitis or other diseases or blood impairments.

4. Also, it has been explained that emergencies may arise when it may not be possible to make adequate cross-matching tests, and that immediate need may make it necessary to use existing stocks of blood which may not include the most compatible blood types.

5. It is understood and expressly agreed that the blood supplied in accordance with this agreement is incidental to the rendition of services and that no requirement, guarantee, or warranty of fitness or quality shall apply.

Signature of patient ....

When patient is a minor or incompetent to give consent:

Signature of person authorized to consent for patient ....

Address ....

Relationship to patient ....

Witness: Signature ....

Address ....

City and State ....

COUNCIL ON MEDICAL SERVICE

THE ROLE OF EXERCISE IN THE AGING

Paul D. White, M.D., Boston

This is the third of a series of papers on various aspects of aging. Each paper has been prepared for the Committee on Aging by an authority in the field. When completed, the series will be published in booklet form.

As I sit down to write about the role of exercise in the aging, I am conscious of the pleasant and relaxing effect of a brisk walk in the clear cold air of Santa Fe and the hills around. As a senior member of society, I can vouch for this particular positive effect of exercise; for many aging persons this may be its chief value. However, there are other physiological results of exercise which deserve as much emphasis in the aging as they do in the young, and possibly even more.

Though such effects of exercise are frequently referred to in the presentation of health programs, they are but little discussed in planning for the health and happiness of older persons. To be sure, no hard and fast rules about exercise can be laid down for everyone of a certain age, in the first place, because no two persons have exactly the same physical needs or psychological preferences and, secondly, because chronological age is not the same as physiological age. Also it is true that some individuals live to be old and free from disease despite the fact that the only exercise they get is in breathing, eating, talking, and in tending to their minimal physiological processes of other nature; what percentage of healthy older persons belong in this category has not been determined, but it appears to be considerably in the minority.

Naturally, in extreme old age, when physical strength and mental ability steadily decline, there comes a time when exercise beyond that of the simplest acts of living is no longer possible, but in the early and middle ye of old age exercise can be very beneficial. It is i portant to recognize that there is a difference betwe positive health and the mere absence of disease.

At any age, physical exercise, more or less plann though not as a burdensome or boring program, l certain beneficial effects which can be helpfully viewed in our discussion of the problems of aging. T kind of exercise is not very important except tha should suit the strength, aptitude, and liking of particular person. It may vary in strenuousness fr that involved in simple deep breathing in short peri several times a day to that involved in heavy wo cutting or snow shoveling or fast tennis.

There should be no age set at which a person lo accustomed to vigorous exercise should cease ex cising, although it is usually wise to tone down t energy expenditure and the amount of time per d or week with each passing decade. If a man or wom is in good health and enjoys exercise in the open (or perhaps even if not) the beneficial effects can c tinue to a very advanced age. I have known of Mai guides and lumbermen, gardeners, sailors, labore and sportsmen who have kept up a vigorous progr both enjoyably and beneficially well into the 80's.

There are very few adequate statistics concerni the health and longevity of athletes. Some articles a books have been published on the subject; one of thes entitled "University Oars," was written many yea ago (1873) by Dr. John E. Morgan, who was oarsman himself. Dr. Morgan, of Oxford Universit made a follow-up study of members of the crews wh took part in the annual races between Cambridge an Oxford from 1829 to 1869. His conclusion was th the effect of the rowing was a favorable one, that th type of exercise (some of which was continued years afterward) had no unfavorable effect on heal

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Members of the Committee on Aging are Drs. H. B. Mulholland, Chairman, Charlottesville, Va.; Edward L. Bortz, Philadelphia; Henry A. Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; Theodore G. Klumpp, New York; Frederick C. Swartz, Lansing, Mich.; and Cecil Wittson, Omaha. Committee Staff: Mr. George W. Cooley, Secretary, and Mr. Herbert B. Norton, Research Assistant.

ut rather the reverse, and that the longevity of the arsmen was slightly greater than that of the average opulation.

A study not yet reported, which my associates and made, was a follow-up of Harvard football players vho earned their letters between the years 1900 and 930. This study showed a longevity close to that exected in the population at large. It had been hoped o compare those who continued vigorous exercise hroughout their lives with those who took no particuar exercise after graduation from college and also hose who had gained very much weight with those vho had gained practically no weight at all. Evidence on these two points was definitely favorable for those vho continued vigorous exercise and who did not gain veight, but the numbers in these extreme groups were ardly adequate for statistical conclusions. One of the difficulties in such a study is that the majority of American males live a standard existence, that is, they eat much the same diet, drink and smoke moderately, get some exercise but not of any considerable degree, and gain a moderate amount of weight through the years (10 to 25 lb. or more in the course of 30 years).

Benefits of Exercise

Exercise has positive effects on the health. In the first place, there is the benefit of establishing or maintaining the general muscular tone throughout the body, including that of the heart itself. Some muscles, of course, become stronger if they are more involved in the exercise, for example, the leg muscles in long walks, golfing, cycling, or tennis, or the arm muscles in wood cutting, gardening, fishing, or housework. One of the muscles that it is important to keep in good tone is the diaphragm; almost any vigorous exercise or even repeated programs of deep breathing will help here.

There are several values that are derived from good muscle tone. One is that which concerns the circulation of the blood itself. Sometimes one forgets that the heart, although the most important factor of course, is not the sole supporter of the circulation. The elasticity of the aorta and other great arteries is of importance in maintaining an even flow of blood. The vasomotor function of the smaller vessels is vital for the selective distribution of the blood to the organs as needed. The peripheral veins with their valves act as local pumps for the return of blood to the heart when they are compressed by the muscles that surround them. The better the tone of the muscles the better is this support to the heart afforded by the veins. For the same reason, peripheral venous stasis of high degree with the development of varicosities, the pooling of blood, and phlebothrombosis is counteracted, to a certain degree at least, by good muscle tone. Finally, good tone of the diaphragm with wide respiratory excursions (aided by the avoidance of obesity) not only greatly helps respiration but also improves the pumping action of the diaphragm in its suction of blood back to the chambers of the right side of the heart.

A second benefit from exercise is that already referred to, namely, its effect on the psyche. Most individuals, old as well as young, are much helped by the relaxation which comes from exercise of the right degree, usually midway in amount and intensity between the extremes of triviality and of exhaustion. For many of us, exercise is a delightful antidote for nervous tension and strains, anxiety, and mental concentration. A pleasant fatigue of the skeletal muscles has time and time again given me mental repose, peaceful sleep, and a sense of equanimity.

A third benefit has been on digestion, partly, in all probability, by reducing nervous tension, which is a common factor in cases of esophageal irritability (cardiospasm) and peptic ulcer, and partly by its favorable effect on the bowel function.

A fourth benefit of exercise at any age, and therefore applicable to the "aging," is its favorable effect in helping to control obesity, a condition widely regarded as inimical to the best of health and longevity. Although it is true that obesity is due to the combined effects of heredity and overnutrition, nevertheless, with the same caloric intake, the increased metabolic requirement resulting from exercise does help to control body weight. It is not the fat deposited under the skin here and there throughout the body or in the omentum that is of most importance but rather a few grams of fat in the wrong places, particularly in the walls of the coronary and other important arteries.

Finally, the deepening of respiration which comes with exercise favors the function of the lungs in gaseous exchange and in the state of the lung tissue itself. Although chronic bronchitis and emphysema are common in old age and limit the amount of exercise possible, they are not a bar in themselves to mild exercise within the reserve of the person affected.

Even in the presence of disease other than in the lungs, suitable exercise can be beneficial. I have seen many patients with heart diseases of various kinds and degree and, except for the most severe cases, slight to moderate exercise can and should be prescribed. Of course, angina pectoris too easily induced or myocardial weakness of considerable degree will demand pro tem absolute rest, but with recovery or in the presence of well-healed myocardial infarction, as in the President's case, a careful program of regular exercise may not only be an important health measure but it may conceivably be helpful, in the absence of important symptoms, in retarding the further progress or increase of coronary atherosclerosis. Further research as to this possibility is in order.

Thus, in conclusion, it may be said that exercise of almost any kind, suitable in degree and duration for the particular individual concerned, can and does play a useful role in the maintenance of both physical and mental health of the aging individual but that no hard and fast rules can be set, because each person requires individual appraisal.

MEDICAL NEWS

ARKANSAS

State Medical Election.—The Arkansas Medical Society has recently installed Dr. T. Duel Brown, Little Rock, president; Dr. Louis K. Hundley, Pine Bluff, president-elect; Dr. John W. Smith, Little Rock, treasurer; and Dr. John J. Monfort, Batesville, secretary.

CALIFORNIA

Personal.—Dr. Frederick M. Kriete, assistant chief of preventive medical services with the State Health Department, has been appointed deputy state health director. The position was created at the last session of the Legislature. Dr. Kriete has been with the department since 1947.

Grants for Heart Disease Research.—Allocations totaling $221,669 for heart disease research have been announced by the Los Angeles County Heart Association. The grants are for support of 34 projects at Southern California School of Medicine, University of California Medical Center, College of Medical Evangelists, the Veterans Administration Center, and Cedars of Lebanon, Children's, and Los Angeles County hospitals. The majority of the studies are concerned with the cause and prevention of heart disease. Grants to University of California investigators working at the Medical Center, the VA Center, and Cedars of Lebanon Hospital total $112,927, including a $50,000 grant for the Heart Association Laboratory, where Wilfried Mommaerts, Ph.D., is studying the basic chemistry of the heart muscle.

Psychiatric Society Founded.—Twenty psychiatrists from Santa Clara and Monterey counties met at the Santa Clara County Hospital recently to officially form the Santa Clara–Monterey Counties Psychiatric Society. The purpose of this group will be to promote psychiatry in these two counties by sponsoring scientific-educational programs, by representing psychiatry in the community, and by encouraging fellowship between psychiatrists and workers in related fields. The society plans to become an affiliate society to the American Psychiatric Association. At the founding meeting a constitution was accepted and the following officers were elected: Dr. Robert A. Hall, San Jose, president; Dr. Fred Tempey, Agnews State Hospital, vice-president; Dr. Alan M. Clarke, Los Gatos, secretary-treasurer; and Drs. Raymond L. Hack, Salinas, Norman Rogers, Agnews State Hospital, and Walter J. Freeman, Los Altos, councillors.

COLORADO

Automobile Crash Injury Study.—A unique study of automobile accidents has been initiated in Colorado primarily concerned with determining the nature and specific causes of injury to occupants of passenger cars. This program, known as Automotive Crash Injury Research, has been endorsed by the House of Delegates of the Colorado State Medical Society and will constitute a coordinated effort on the part of the society and the Colorado State Patrol. The study will function for a year as part of a 15-state program coordinated by the Automotive Crash Injury Research project of the Department of Public Health and Preventive Medicine, Cornell University Medical College, New York City. The Colorado study will help to evaluate the effectiveness of specific design changes in 1956, 1957, and 1958 model automobiles, energy-absorbing steering wheels, seat belts, and interior padding. Medical and accident data-collecting methods operate in the following way: all 1956, 1957, and 1958 passenger cars involved in injury-producing accidents outside the limits of municipalities come within the scope of the study. Immediately following an accident, the Colorado State Patrol officer in charge submits to the physician or emergency room chief or coroner a special medical report form furnished by Cornell which includes a description of the extent and nature of all injuries. Completed forms are mailed to the Colorado State Medical Society. These studies are sponsored by the Armed Forces Epidemiological Board through its Commission on Accidental Trauma, with funds supplied by the Surgeon-General of the Army, by the Division of Research Grants of the United States Public Health Service and by grants to Cornell University Medical College of unrestricted funds by the Ford Motor Company and the Chrysler Corporation.

CONNECTICUT

Dr. Paul Receives Lyman Medal.—The David Russell Lyman gold medal for "outstanding productiveness and service to public welfare" was awarded to Dr. John R. Paul on May 25. The presentation was made at the 55th annual meeting of the Gaylord Farm Association in Wallingford. Dr. Paul is professor of preventive medicine in the Yale Medical School, New Haven. In 1938 he and the Yale Med-

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

ical School received the first research grant issued by the National Foundation for Infantile Paralysis. In making the presentation, Dr. Gustaf E. Lindskog, professor of surgery at Yale, said "Dr. Paul's interest in poliomyelitis and other neurotropic diseases, his outstanding accomplishments in rheumatic heart disease, appears to us to appropriately symbolize the changes and broadening emphasis now occurring at Gaylord Farm."

ILLINOIS

Chicago

Personal.—Dr. Joseph T. Meyer has received a Loyola University Alumni Citation, an engraved plaque, awarded to those whose "careers exemplify the ideals of Jesuit education." Dr. Meyer served in the Army Medical Corps, attaining the rank of captain, and after World War I he joined with his brothers, Dr. Raymond Meyer and the late Dr. Edwin Meyer, to establish a clinic on the south side. Dr. Meyer is president and chief surgeon of St. George Hospital.

New Chairman of Radiology Department.—Dr. Earl E. Barth, professor of radiology, Northwestern University Medical School, has been named chairman of the department of radiology, effective Sept. 1, to succeed Dr. Edward L. Jenkinson, who is retiring. Dr. Barth, a graduate of Northwestern Medical School, joined the faculty in 1931 as a fellow in radiology. In 1953 he was named a full professor. He is also chief consultant in radiology at the Veterans Administration Research Hospital, Chicago, a past-president of the Chicago Roentgen Society and a past-chairman of the executive council of the American Roentgen Ray Society, and now is chairman of the board of chancellors of the American College of Radiology.

Institute for Study of Congenital Heart Disease.—A Congenital Heart Institute sponsored by the Chicago Heart Association was started Sept. 1 and will continue for a minimum of 10 years. Dr. Maurice Lev has been hired as full-time investigator to devote all his time to a study of the life history and pathology of the defects of the heart. Dr. Lev will perform his investigative work in laboratory and working space provided for him in the Hektoen Institute of Chicago and the work will be done under the cooperation of the five Chicago medical schools, the Chicago Heart Center, and the health agencies of city and state. Dr. Lev plans to assemble clinical, laboratory, and pathologic data on cases of children who die of congenital heart defects. Cost of the institute will be about $50,000 a year.

Medical Associates of Chicago.—A medical facility, the Medical Associates of Chicago, has been organized by Dr. Nathaniel Calloway, professor of internal medicine, University of Illinois Medical School. This group, which has offices in the Lake Meadowbrook development, involves a collective investment of $700,000 and represents the first established group practice started by Negroes in the city with complete diagnostic facilities. The group has 14 physicians, three dentists, technicians, nurses, and office personnel, in all about 40 persons. The new offices house a pharmacy, medical diagnostic and dental laboratories. From 1951 to 1953, Dr. Calloway served as associate chief of medicine at Percy Jones Army Hospital, Battle Creek, Mich. He has served as a medical consultant to the U. S. public health service and the naval research project at the University of Illinois, and is a member of the Tuberculosis Institute of Chicago and Cook County.

KENTUCKY

State Medical Association Meeting.—The R. W. Gaines Memorial Meeting of the Kentucky State Medical Association will be held Sept. 16-19 at the Columbia Auditorium, Louisville. A panel discussion, "Hypothyroidism—Diagnosis and Management," will be moderated by Dr. Alton Ochsner, New Orleans, on Sept. 19. Color television sessions will include two symposiums: duodenal ulcer and congenital heart disease. The program includes the following topics by out-of-state speakers:

Tuberculosis in Childhood: Some Aspects of Prevention, Diagnosis and Treatment, Dr. Gardner Middlebrook, Denver.
Obstetrical Anesthesia and Analgesia, Dr. Ralph A. Reis, Chicago.
Pain as an Emotional Problem, Dr. Lawrence C. Kolb, New York City.
Role and Function of the National Eye Bank, Dr. Donald M. Shafer, New York City.
Modern Concepts in the Management of Hepatic Failure, Dr. John M. Rumball, Coral Gables, Fla.
Carcinoma of the Stomach, Dr. Alton Ochsner, New Orleans.
Preventable Errors in the Care of Orthopedic Injuries, Dr. Robert A. Knight, Memphis, Tenn.

Twelve specialty groups will present scientific programs simultaneously the afternoon of Sept. 18. Entertainment includes the President's Luncheon, at which Dr. Kenneth McFarland, Topeka, Kan., will speak on "Ropes of Gold." A special ladies' program is planned. For information write Mr. J. P. Sanford, 620 S. Third St., Louisville 2, Ky.

LOUISIANA

Graduate Medical Assembly.—The Southwest Louisiana Graduate Medical Assembly will hold its eleventh annual meeting at the Majestic Hotel, Lake Charles, Sept. 13-14. All physicians are invited to attend this meeting which is approved for category I by the American Academy of General Practice. The program includes the following topics by out-of-state speakers:

Outpatient Management of Hypertension, Dr. John Moyer, chairman, department of medicine, Hahnemann Medical College, Philadelphia.
Anxiety Heart Disease, Dr. Don Chapman, professor of medicine, Baylor University, Houston, Texas.

Common Duct Stone, Dr. Robert M. Moore, chairman, department of surgery, University of Texas, Medical Branch, Galveston.

The Interpretation of Chest Films in Pediatrics, Dr. Vincent P. Collins, professor of radiology, Baylor University College of Medicine.

The Practical Diagnosis of Bleeding Disorders, Dr. Jack Abbott, pathologist and director of laboratories, Methodist Hospital and Baylor University College of Medicine, Houston.

A panel discussion, "Diagnosis and Management of Thyroid Diseases," will be presented by Drs. Don Chapman, John Moyer, Jack Abbott, Vincent P. Collins, and Robert M. Moore. A clinico-pathologic conference and a round-table luncheon discussion also are scheduled. For information write Dr. Janie M. Topp, P. O. Box 568, Lake Charles 1, La.

MICHIGAN

Society News.—The following officers of the Michigan Allergy Society have been elected: Dr. Ernst O. Schreiber, Flint, president; Dr. Bernard Dickstein, Flint, vice-president; and Dr. Milton J. Steinhardt, Detroit, secretary-treasurer.

State Medical Society Meeting.—The 92nd annual session of the Michigan State Medical Society will be held Sept. 25-27 at the Pantlind Hotel, Grand Rapids. The annual presidential address will be given by Dr. Arch Walls, at the officers' night, after which Governor G. Mennen Williams will also present an address. The program includes special discussion conferences and the following panel discussions: Treatment of Polyps of the Rectum and Colon; The Problem of the Destructive Impulse in the Practice of Medicine; What's New in Heart Disease; and Patient-Centered Medical Care. The fifth Beaumont Lecture, "Cancer of the Lower Bowel: The Adenoma Carcinoma Sequence," will be presented by Dr. Raymond J. Jackman, head, section of proctology, Mayo Clinic, Rochester, Minn. Technical and scientific exhibits are scheduled. Entertainment includes the officers' night dinner-dance Sept. 25. Mr. Walter P. Reuther, Detroit, will speak on "Medicine and Labor in These Changing Times" the afternoon of Sept. 25. For information write Dr. L. F. Foster, 606 Townsend Street, Box 539, Lansing 15, Mich.

MISSOURI

Society News.—The following officers were elected by the members of the St. Louis Society of Anesthesiologists: president, Dr. Thomas Culkin; vice-president, Dr. Harry Sammons; secretary, Dr. Richard E. Hanna; and treasurer, Dr. Jean Merz.

Personal.—Dr. Walter J. Burdette professor of clinical surgery, St. Louis University School of Medicine, and director, St. Louis University Surgical Service at Veterans Hospital, has gone to Tokyo to visit medical and research institutions in Japan. One objective of the trip is in connection with the studies he has been conducting at the university on a hormone in relation to cancer. Following his stop in Japan Dr. Burdette will visit and lecture at medical and research centers in Thailand, India, Lebanon, Germany, France, Greece, and Turkey.—Dr. Norman Tobias, dermatologist of St. Louis, has returned from an extended trip to the Far East, where he lectured before the Tokyo, Bangkok, and Manila Medical Societies under the auspices of the World Medical Association.

NEBRASKA

General Practice Meeting in Omaha.—The annual meeting of the Nebraska Chapter of the American Academy of General Practice will be held Sept. 13-14 at the Fontenelle Hotel, Omaha. The presidential address will be given by Dr. Thomas D. Fitzgerald. A panel discussion with live television interviews on a closed-circuit direct from the Nebraska Psychiatric Institute on "Psychiatric Aspects of Surgical Practice" will be held on the morning of Sept. 13, with Dr. L. C. Strough serving as moderator. A luncheon program Sept. 13 includes addresses by Drs. Paul Read, president, Douglas County Medical Society; R. R. Best, president, Nebraska State Medical Society; and M. E. Phelps, president, American Academy of General Practice. Guest speaker at the banquet to be held the evening of Sept. 14 will be Dr. H. E. Campbell, Denver, member of the American Medical Association's Traffic Committee, whose topic is "Safety on Our Highways." A special ladies' program is planned. For information write Dr. C. R. Brott, Chairman, Program Committee, 2124 Elk St., Beatrice, Neb.

NORTH CAROLINA

Grant for Pituitary Study.—A grant of $31,050 from the U. S. Public Health Service has been made to Dr. Gordon Dugger, assistant professor of surgery, University of North Carolina School of Medicine, Chapel Hill, to be used for the study of the effects of pituitary gland operations on patients with cancer. Associated with Dr. Dugger in the research are Drs. James Newsome and Judson Van Wyk. Dr. Dugger was trained in neurosurgery at the Montreal Neurological Institute of Montreal, Canada.

GENERAL

Pediatricians Meeting in Chicago.—The 26th annual meeting of the American Academy of Pediatricians will be held Oct. 5-10 at the Palmer House, Chicago. Two symposiums are scheduled for the general sessions: current developments in infant nutrition, and animals and diseases. Three panel discussions are also scheduled: problems of the hospitalized child, iatrogenic disease, and congenital metabolic disease. Round-table discussions will be held Oct. 7 and 8. The Mead Johnson award presentation "Steroid Biogenesis in the Adrenal Cortex of Man" and "Some

Studies on the Biochemistry of Connective Tissue," will be given by Drs. Alfred M. Bongiovanni and Walter R. Eberlein, of Philadelphia, and Dr. Albert Dorfman, Chicago, respectively. The Borden award presentation will be given by Dr. Arild E. Hansen, Galveston, Texas, on "Essential Fatty Acids in Infant Nutrition." A special quiz session will be held Oct. 8 under the direction of Dr. Robert B. Lawson, Miami, Fla. Scientific and commercial exhibits will be shown. A ladies' program is planned. Entertainment includes the annual banquet. For information write the Executive Officer, American Academy of Pediatricians, 1801 Hinman Ave., Evanston, Ill.

International Postgraduate Medical Association Meeting.—The 42nd International Scientific Assembly of the Interstate Postgraduate Medical Association will be held Sept. 30-Oct. 3 at the Palmer House, Chicago. Forty papers are scheduled for presentation. Three symposiums will be held on the following topics: what's new in obstetrics, surgery, and steroids; trauma; and the proper selection of cases for heart surgery. The following presentations will be made by Canadian speakers:

Abnormal Vaginal Bleeding in the Menopause, Dr. Newell Philpott, professor of obstetrics and gynecology, McGill University Faculty of Medicine, Montreal, Canada.

Clinical Management of the Allergic States, with Special Reference to Long-Term Steroid Therapy, Dr. Bram Rose, professor of medicine, McGill University Faculty of Medicine, Montreal.

A Neuro-Surgeon Looks at "Strokes," Dr. E. Henry Botterell, associate professor of surgery, University of Toronto, Canada.

The guest speaker at the annual dinner will be Kenneth McFarland, Ph.D., Topeka, Kansas, whose topic will be "Ropes of Gold." For information write Interstate Postgraduate Medical Association, Box 1109, Madison 1, Wis.

Radiological Research Awards.—The James Picker Foundation has announced two awards in the field of radiological research, in addition to those made public in June. As a part of its efforts in advancing the science of radiology, the foundation supports research grants, fellowships, and grants for scholars. These awards are made on recommendation of the National Academy of Sciences–National Research Council.

A research grant has been made to the University of Saskatchewan, Saskatoon, Canada, to permit continuation for a third year of Dr. Sidney P. Traub's studies on x-ray changes produced by increased pressure from within the skull. Dr. Traub is assistant professor of diagnostic radiology at the university College of Medicine.

The reappointment of Dr. Hans Ludin, of New York City, as a James Picker Foundation Fellow in Radiological Research is also announced. Under his fellowship, which began in 1956, Dr. Ludin has been studying the use of special techniques to visualize the pancreas on x-ray examination. This work is being carried out in the department of radiology, New York Hospital, New York City, under the guidance of Dr. John A. Evans.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

	Aug. 10, 1957		Aug. 11, 1956
Area	Paralytic Type	Total Cases	Total Cases
New England States			
Maine	..	..	1
New Hampshire	..	1	1
Vermont	..	..	1
Massachusetts	..	1	11
Rhode Island	..	..	1
Connecticut	..	..	7
Middle Atlantic States			
New York	2	7	39
New Jersey	1	5	14
Pennsylvania	..	2	3
East North Central States			
Ohio	6	30	34
Indiana	..	8	25
Illinois	7	25	218
Michigan	4	40	32
Wisconsin	1	28	19
West North Central States			
Minnesota	1	6	5
Iowa	..	6	42
Missouri	..	10	24
North Dakota	1	2	..
South Dakota	3	18	3
Nebraska	1	3	12
Kansas	..	6	8
South Atlantic States			
Delaware	..	2	2
Maryland	1	1	..
District of Columbia	1	1	1
Virginia	4	4	13
West Virginia	..	1	10
North Carolina	1	25	24
South Carolina	1	6	6
Georgia	4	4	14
Florida	1	8	18
East South Central States			
Kentucky	4	6	7
Tennessee	2	6	6
Alabama	..	2	3
Mississippi	..	3	21
West South Central States			
Arkansas	2	4	12
Louisiana	2	9	41
Oklahoma	1	7	15
Texas	7	20	34
Mountain States			
Montana	..	1	1
Idaho	1	3	2
Wyoming	..	..	1
Colorado	1	3	5
New Mexico	1	5	4
Arizona	1	3	5
Utah	..	..	25
Nevada	..	..	3
Pacific States			
Washington	..	..	7
Oregon	1	1	9
California	7	33	87
Territories and Possessions			
Alaska	..	..	..
Hawaii	..	..	2
Puerto Rico	3	3	..
Total	73	339	878

Society News.—The following officers of the **American College of Physicians** have been installed: president, Dr. Richard A. Kern, Philadelphia; president-elect, Dr. Dwight L. Wilbur, San Francisco; first vice-president, Dr. Herbert K. Detweiler, Toronto; second vice-president, Dr. Charles A. Doan, Columbus, Ohio; third vice-president, Dr. Lemuel C. McGee, Wilmington, Del.——The newly elected officers of the **World Federation of Neurosurgical Societies** are: Dr. Paul C. Bucy, Chicago, president; Dr. E. Harry Botterell, Toronto, Canada, vice-president; Dr. Bronson S. Ray, New York, secretary-general; Dr. William B. Scoville, Hartford, Conn., assistant secretary-general; Dr. Barnes Woodhall, Durham, N. C., treasurer; Dr. Wallace B. Hamby, Buffalo, N. Y., assistant treasurer; and Dr. David L. Reeves, Santa Barbara, Calif., editor of the transactions. Dr. Percival Bailey, of Chicago, Dr. Wilder Penfield, of Montreal, Canada, Dr. H. Olivecrona, of Stockholm, Sweden, Dr. Paul Martin, of Brussels, Belgium, Dr. D. Petit-dutaillis, of Paris, France, and Sir Geoffrey Jefferson, of Manchester, England, are honorary presidents.——At the 67th annual meeting of the **American Pediatric Society** the following officers were elected for 1958: president, Dr. A. Ashley Weech, Cincinnati; vice-president, Dr. Alton Goldbloom, Montreal, Canada; secretary-treasurer, Dr. Aims C. McGuinness, Washington, D. C.; recorder-editor, Dr. Stewart H. Clifford, Brookline, Mass.——The following officers of the **Pacific Northwest Society of Plastic and Reconstructive Surgery** have been installed: Dr. Ernest E. Banfield, Tacoma, president; Dr. Carl E. Chism, Seattle, president-elect; Dr. Verner V. Lindgren, Portland, vice-president, and Dr. Willard D. Rowland, Portland, secretary-treasurer.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Part I.* Various Centers, Sept. 3-4. Sec., Dr. John B. Hubbard, 133 South 36th St., Philadelphia 4.

MEDICAL SPECIALTY BOARDS

American Board of Anesthesiology: *Oral.* Washington, Oct. 28-Nov. 1. Various locations in the United States and Canada, July 18. Final date for filing application is Jan. 18. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology: *Oral.* Baltimore, Oct. 11-13. Final date for filing application was April 1. Sec., Dr. Beatrice Maher Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine: *Written.* Oct. 21. *Oral.* Los Angeles, Sept. 11-14. Final date for filing applications was Feb. 1. Exec. Sec., Dr. W. A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Part I.* Chicago, Jan. 2. *Part II.* Chicago, May 7-17. Final date for filing application is Spetember 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Oral.* Chicago, Oct. 7-11. *Written.* January 1958. Final date for filing application was July 1. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: Parts I and II, New York City, Jan. 29-31, 1958. Final date for filing application is August 15. Sec., Dr. Sam W. Banks, 116 South Michigan Avenue, Chicago 3.

American Board of Otolaryngology: Chicago, Oct. 7-11. Final date for filing application was in April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology: *Oral and Written. Pathologic Anatomy and Clinical Pathology.* New Orleans, Sept. 26-28. Final date for filing application is August 15. Sec., Dr. Edward B. Smith, Indiana University Medical Center, Indianapolis 7.

American Board of Pediatrics: *Oral.* Chicago, Oct. 11-13. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Oral and Written Examination.* San Francisco, Oct. 31-Nov. 2. Final date for filing case reports was July 1. Corresponding Sec., Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *In Public Health. Oral and Written.* Cleveland, Nov. 7-9. Sec., Dr. Thomas F. Whayne, 3438 Walnut St., Philadelphia.

American Board of Proctology: *Oral and Written. Parts I and II. September.* Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

American Board of Psychiatry and Neurology: New York, Dec. 16-17. San Francisco, March 17-18. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S. W., Rochester Minn.

American Board of Radiology: Washington, Sept. 23-28. Final date for filing application was June 1. Chicago, May 20-24. Final date for filing application is Jan. 1, 1958. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part II.* Buffalo, Sept. 23-24; New Haven, Oct. 21-23; Indianapolis, Nov. 18-19; Cincinnati, Dec. 16-17; New Orleans, Jan. 13-14; Durham, N. Car., Feb. 10-11; Baltimore, March 10-11; Chicago, May 12-13; Los Angeles, June 16-17 and Portland, Oregon, June 20-21. Sec., Dr. John B. Flick, 225 So. 15th St., Philadelphia 2.

American Board of Urology: *Written examination.* Various cities throughout the country. *Pathology and Oral Clinical.* February 1958. Location not decided. Exec. Secretary, Mrs. Ruby L. Griggs, 30 Westwood Road, Minneapolis 16.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, Sept. 6, and the closing date for registration was July 1, 1957. Sec., Dr. William H. Tuttle, 1151 Taylor Ave., Detroit 2.

GOVERNMENT SERVICES

AIR FORCE

Consultants Visit Medical Installations.—The following four consultants to the surgeon general recently visited Air Force medical installations in Europe, the Far East, and Alaska. They rendered services on problem cases in their specialties and conducted lectures and teaching sessions at various medical installations.

Dr. Francis M. Forster, dean, Georgetown University School of Medicine, and consulant in neurology, visited installations in England, France, Germany, Morocco, and Libya.

Dr. Jasper Lamar Callaway, professor of dermatology and syphilology, Duke University School of Medicine, and consultant in dermatology, visited installations in Japan, Korea, Okinawa, the Philippine Islands, and Taiwan.

Dr. Sidney S. Chipman, professor of maternal and child health, University of North Carolina School of Public Health, and consultant in pediatrics, and Dr. Marvin E. Chapin, professor of oral surgery, University of North Carolina, and consultant in oral surgery, both visited installations in Alaska.

Personal.—At the School of Aviation Medicine in Texas, Dr. Lawrence E. Lamb has been appointed chief of the department of internal medicine. Dr. Lamb did research in Switzerland in 1954 on electrocardiography as a fellow of the American Heart Association. He is the author of a forthcoming book. "Fundamentals of Electrocardiography and Vectorcardiography."

Conduct Awards Made.—The following Air Force medical officers have been awarded the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding service: Col. Manah R. Halbouty, commander, 3605th U. S. A. F. Hospital, Ellington Air Force Base, Texas; Col. Robert A. Patterson, surgeon, Eastern Air Defense Force, Stewart Air Force Base, New York; Col. Philip P. Pease, commander, 7272nd U. S. A. F. Hospital, Wheelus Air Force Base, Libya.

ARMY

Wings for Army Aviation Medical Officers.—First award of silver Army aviation wings to 50 Army Medical Corps officers marks the newest development in the Army aviation medicine program according to Major Gen. Silas B. Hays, surgeon general of the Army. The new badge has the caduceus superimposed on the shield of the Seal of the United States centering the wings.

Officers designated to wear these wings already have non-crew-member flying status and pay, and they also perform clinical duties for non-flying personnel. They are officially recognized as being qualified to conduct medical examinations for flying, to exercise supervision over the health of flying personnel, and to furnish medical advice related to Army aviation. They receive their aviation medical training at the Air Force School of Aviation Medicine, Randolph Air Force Base, Texas, or at the Navy School of Aviation Medicine, Pensacola, Fla. On completion of either of these courses, the Army graduates are sent to the Army Aviation School, Fort Rucker, Ala., for applicatory instruction in Army aviation medical practice.

The 50 medical officers awaiting their wings are to be found with infantry, armored, and airborne divisions, with station medical complements responsible for the care of significant concentrations of Army aviators, and with a variety of special Army aviation activities. They are stationed in Germany, Japan, Korea, the Territory of Hawaii, and the Canal Zone. They are serving at installations across the United States from Fort Lewis, Wash., to Fort Benning, Ga., from the Army Medical Research Laboratory, Fort Knox, Ky., to the Walter Reed Army Medical Center.

Personal.—Col. Joseph P. Russell has been named Post Surgeon and Commanding Officer of the Army Hospital at Fort Leavenworth, Kan., succeeding Col. Norman Anderson.

VETERANS ADMINISTRATION

Study of Sarcoidosis.—The project sponsored by the Veterans Administration to investigate the etiology of sarcoidosis will be carried on in five hospitals which will contribute information on the environment, occupation, eating habits, and self-medication of patients affected by this disease. The central office research team is composed of Dr. Martin M. Cummings, director of research service; Dr. Edward Dunner, secretary of the Veterans Administration–armed forces committee on chemotherapy of tuberculosis; Dr. Richard H. Schmidt Jr., tuberculosis service; and J. H. Williams of research statistics. Seventeen hundred cases of sarcoidosis were diagnosed in these hospitals between the years 1949 and 1956.

Personal.—Dr. Thomas J. Ready, director, professional services, VA Hospital, Providence, R. I., was transferred as manager of the VA Hospital at Washington, D. C., to fill the vacancy created by the retirement of Dr. Edwin J. Rose on June 30.——Dr. Kenneth W. Brown, director, professional services, VA Hospital, Omaha, has been appointed to the combined position of manager and director of professional services at the VA Hospital, Clarksburg, W. Va., to fill the vacancy created by the retirement of Dr. Louis M. Hohman on June 26.——Dr. Abraham M. Kleinman, director of professional services, VA Hospital, Brooklyn, N. Y., has been appointed manager of the VA Hospital in the Bronx, New York City, a 1,372-bed general medical and surgical facility.——Dr. Richard B. Bean, area director of professional services, VA Area Medical Office, Boston, had become manager of the VA Hospital at Boston, replacing Dr. George P. Denny who retired June 30, 1957. The hospital is a 920-bed general medical and surgical facility.

Mental Hospital as a Therapeutic Community.—The Veterans Administration is trying to develop the mental hospital into a therapeutic community that will prepare recovering patients for the life they will lead outside the hospital. A pilot program is under way at the VA Hospital in St. Cloud, Minn.

Dr. Jesse F. Casey, VA director of psychiatry and neurology, said the nub of the St. Cloud program is a "motivation unit," directed by Dr. W. R. Coutant. This unit consists of a ward with 80 patients selected from the entire hospital and a foster home program under which 55 patients live outside the hospital on a trial basis. Patients living in the ward are encouraged to become friends, to work at jobs in the hospital, to attend recreational activities together, and to live much as they would outside the hospital. Once a week they gather in groups of 10 to talk about their feelings and fears of returning to the community, Dr. Casey said, and efforts are made by the staff to allay the fears and build up the patients' trust and confidence. When the ward patients are ready, they are placed with families in the St. Cloud area.

Only about 10% of those in foster homes have returned for further hospitalization, and in the two years since the motivation unit was established the number of discharges from the hospital has risen from less than 300 a year to about 600. The staff of the unit includes also a social worker, a psychiatric nurse, a clinical psychologist, and the hospital's vocational counselor.

Former Long-term Patients Now at Work.—Increasing numbers of long term patients are able to leave VA hospitals to take paying jobs under a new vocational guidance program. During the first three months of 1957, a total of 2,825 patients were placed in jobs outside the hospital by the VA's vocational counseling service and through state and local agencies. The figure includes veterans who have recovered from mental illness, tuberculosis, and other seriously disabling illnesses.

Study of Fungus Pulmonary Diseases.—Comprehensive studies of two lung diseases (histoplasmosis and coccidioidomycosis), which simulate tuberculosis, have been started by the VA in cooperation with the Armed Forces, the VA announced July 23. The studies are aimed at testing the effectiveness of new drugs which show promise in treatment.

Tentative case registries of some 500 patients with histoplasmosis or coccidioidomycosis in VA hospitals during the past two years have been established for study. Diagnoses are being substantiated by laboratory tests.

The histoplasmosis study is being carried out at seven VA hospitals, and at the Naval Hospital, St. Albans, N. Y., and Fitzsimons Army Hospital, Denver.

Central laboratories for the study have been established at the Kennedy Division of the VA's Memphis Hospital, and at Walter Reed Army Hospital in Washington, D. C.

Fourteen VA and Armed Forces hospitals are making the study of coccidioidomycosis. The central laboratory for the coccidioidomycosis study is at the VA's San Fernando, Calif., Hospital.

PUBLIC HEALTH SERVICE

Program to Encourage Research on Aging.—A new research approach to the health problems of older persons was launched on Aug. 1, as Surgeon General Leroy Burney announced a $306,922 award to Duke University in a special ceremony on the university campu at Durham, N. C. The award is the first grant in th Public Health Service's new program to encourage establishment of research centers in which many departments of a university, and the health and relate agencies of a community will cooperate in studyin various aspects of aging.

The program at Duke University has four main objectives: (1) To develop a Center for Aging Researc based on a university-wide effort. (2) To suppo fundamental research concerned with health problen of aging and to include relevant research contributio from the social and behavioral sciences and relate fields. (3) To train investigators interested in th problems of aging. (4) To foster a regional resour for the dissemination of scientific knowledge in th field of aging.

The Public Health Service program to encoura such research is sponsored by the Center for Researc on Aging at the National Institutes of Health, Bethesda, Md., established in October, 1956, under th direction of Dr. G. Halsey Hunt.

Research on Cerebral Vascular Disease.—The launching of a nationwide cooperative research program o cerebral vascular disease has been announced by th surgeon general. Ten medical research centers in nin states have already joined in the program, and it expected that many more institutions will ultimatel participate. The program, which is expected to ru several years, is under the auspices of the Nation Institute of Neurological Diseases and Blindness the National Institutes of Health. The program w made possible by grants to the participating orga zations, recommended by the National Advisor Neurological Diseases and Blindness Council. Th program is concerned specifically with patients suffe ing from cerebral vascular disease involving hemo rhage, blood clots, aneurysms, and malformations the arteries or veins of the brain. It has been estimate that as many as 1,800,000 living Americans have su fered cerebral strokes at one time or another and th deaths due to such strokes number about 175,000 annually. This research is expected to shed new light o the nature and causes of strokes and to open the wa to more effective treatment.

DEATHS

Moorhead, John Joseph, Millbrook, N. Y.; born in New York City July 15, 1874; New York University Medical College, New York City, 1897; professor emeritus of surgery at the New York University Post-Graduate Medical School in New York City; an associate member of the American Medical Association; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; decorated for his service in France in World War I; received the Croix de Guerre and the Cross of the Legion of Honor; his own country awarded him the Gold Medal of Honor, the Distinguished Service Cross, and the Distinguished Service Medal; presented with a medal by the Honolulu County (Hawaii) Medical Society for helping care for the wounded following the Japanese attack on Pearl Harbor Dec. 7, 1941, when he was in Honolulu as the guest of the society; in 1944 retired as medical director of the New York City Transit Company; consultant, New York Post-Graduate Medical School and Hospital, Mother Cabrini Memorial and Harlem hospitals in New York City, Yonkers (N. Y.) General Hospital, Nyack (N. Y.) Hospital, Caledonian Hospital, Brooklyn, New Rochelle (N. Y.) Hospital, Mary Immaculate Hospital, Jamaica, Rockland State Hospital in Orangeburg, Rahway (N. J.) Hospital, Fitkin Memorial Hospital, Neptune, N. J., and the All Souls Hospital, Morristown, N. J.; in 1941 received the honorary degree of doctor of science from New York University; author of "Clinical Traumatic Surgery"; died July 1, aged 82, of acute dilatation of the heart.

Larsen, Reuben Leonard, Lieut. Commander, U. S. Navy, retired, Seattle; born on Jan. 25, 1890; Northwestern University Medical School, Chicago, 1916; service member of the American Medical Association; veteran of World War I; commissioned in the regular Navy in 1917; placed on the retired list November, 1920, due to physical disability; at the outbreak of World War II requested recall to active duty and on Dec. 26, 1941, reported to the Naval Air Station, Corpus Christi, Texas, for active duty; released to inactive duty on Oct. 20, 1945; during his more than seven years active service, served with Naval medical department facilities throughout the United States and abroad and in ships of the fleet; died in the U. S. Naval Hospital, Bremerton, June 21, aged 67, of hemopericardium and myocardial infarction.

Comfort, Charles Williams Jr. ⊕ New Haven, Conn.; born in Philadelphia in 1885; Yale University School of Medicine, New Haven, 1911; served in World War I, and was awarded the Distinguished Service Cross and the French Croix de Guerre; during World War II was division surgeon and commanded the 118th Medical Regiment of the 43rd division, National Guard; retired with the rank of colonel in 1946; formerly secretary of the Connecticut State Medical Society; member of the city welfare board; on the staff of the Grace-New Haven Community Hospital; died in the Veterans Administration Hospital, Rocky Hill, May 6, aged 71, of coronary thrombosis.

Higgins, William Harrison ⊕ Richmond, Va.; born in Stanford, Ky., in 1883; Johns Hopkins University School of Medicine, Baltimore, 1908; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Clinical and Climatological Association; past-president of the Richmond Heart Association, Richmond Academy of Medicine, and the Richmond Board of Health; formerly on the faculty of the Medical College of Virginia; on the staff of the Medical College of Virginia, Hospital Division; consultant, St. Elizabeth's Hospital; died June 8, aged 73, of cerebral hemorrhage.

Jesberg, Simon, Los Angeles; born in Franklin, Iowa, Sept. 16, 1886; College of Physicians and Surgeons, Los Angeles, 1913; an associate member of the American Medical Association; member of the American Broncho-Esophagological Association; member and formerly vice-president of the American Laryngological, Rhinological and Otological Society; specialist certified by the American Board of Otolaryngology; formerly on the faculty of the University of Southern California School of Medicine; served in France during World War I; associated with the Eye and Ear Hospital; died June 24, aged 70, of cerebral hemorrhage.

Alley, Ralph Martin ⊕ Orofino, Idaho; born in Benwood, W. Va., Feb. 9, 1901; Jefferson Medical College of Philadelphia, 1927; member of the American College of Chest Physicians and the American Trudeau Society; veteran of World War II; at one time associated with the Indian Service; served as superintendent of the State Tuberculosis Sanatorium in Socorro, N. M., and the Shawnee (Okla.) Indian Sanatorium, and as chief of the student health service, University of Idaho in Moscow; on the staff of the State Hospital, where he died May 10, aged 56, of coronary occlusion.

Christenberry, Henry Eddie ⊕ Knoxville, Tenn.; born in Oliver Springs, Tenn., Sept. 12, 1884; University of Tennessee Medical Department, Nashville, 1907; specialist certified by the American Board of Otolaryngolo-

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⊕ Indicates Member of the American Medical Association.

gy; fellow of the International College of Surgeons; served as member and chairman of the city school board; at one time mayor of Lonsdale; the Christenberry Junior High was named for him; on the staff of the Knoxville General Hospital; medical director and owner of Dr. H. E. Christenberry Eye, Ear, Nose and Throat Infirmary; died in the East Tennessee Baptist Hospital May 20, aged 72.

Mellen, Richard Hager ⊕ Colorado Springs, Colo.; born in Middlebury, Vt., Oct. 23, 1909; Harvard Medical School, Boston, 1935; certified by the National Board of Medical Examiners; specialist certified by the American Board of Orthopedic Surgery; member of the Clinical Orthopaedic Society, American Academy of Orthopaedic Surgeons, and the American Society for Surgery of the Hand; veteran of World War II; chief of staff, Glockner Penrose Hospital; on the staffs of the Memorial and St. Francis hospitals; died June 8, aged 47, of coronary occlusion and myocardial infarction.

Robertson, Roy Lamar ⊕ Monroe, La.; born in Rayville, La., Dec. 14, 1918; Emory University School of Medicine, Atlanta, 1942; interned at the Peter Bent Brigham Hospital in Boston; served a residency at the Grady Memorial Hospital in Atlanta, Ga.; formerly on the faculty of the Emory University School of Medicine in Atlanta; specialist certified by the American Board of Surgery; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; veteran of World War II; on the staffs of the E. A. Conway Memorial and St. Francis hospitals; died in Shreveport May 29, aged 38.

Copeland, N. Newall, Pittsfield, Mass.; born in 1896; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1922; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; chief of surgical staff of Pittsfield General Hospital; an associate surgeon at St. Luke's and Hillcrest hospitals; veteran of the Canadian Army during World War I; past-president of the Berkshire District Medical Society and the Pittsfield Surgical Club; vice-president of the Union Federal Savings and Loan Association; died May 22, aged 60.

Hill, Robert Henry ⊕ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1926; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; on the staffs of the Presbyterian Hospital and the Harrison S. Martland Medical Center; on the courtesy staffs, Hospital of St. Barnabas and for Women and Children, St. James and St. Michael's hospitals and Babies Hospital-Coit Memorial; consultant, Newark Eye and Ear Infirmary; died June 24, aged 63, of coronary arteriosclerosis.

Beebe, Linn Clair, Hamilton, N. Y.; Baltimore Medical College, 1895; veteran of World War I; during World War II a member of the County Medical Committee for Procurement and Assignment; served as cou coroner, postmaster, health officer, and head of department of health, Colgate University; died in *Community Memorial Hospital* June 12, aged 83, hiccoughs of three weeks duration, associated esophageal hernia and diverticulum of the term part of the esophagus.

Blair, William W., Pittsburgh; Hahnemann M College and Hospital of Philadelphia, 1889; profe emeritus of ophthalmology at the University of burgh School of Medicine; specialist certified by American Board of Ophthalmology; member of American Academy of Ophthalmology and Otol gology; fellow of the American College of Surg associated with the Eye and Ear Hospital an Margaret Memorial Hospital; died June 12, age of heart disease.

Bliss, Guy Luvergne, Claremont, Calif.; Rush Me College, Chicago, 1908; *an associate member o* American Medical Association; specialist certifie the American Board of Pediatrics; member o American Academy of Pediatrics; fellow of the A ican College of Physicians; formerly practiced in Beach, where he was associated with the Se Memorial, Long Beach Community, and St. M Long Beach hospitals; died June 2, aged 79, of nary disease.

Simon, Arthur R. ⊕ Sarasota, Fla.; Indiana Univ School of Medicine, Indianapolis, 1908; memb the *Radiological Society of North America* an Indiana State Medical Society; specialist certifie the American Board of Radiology; formerly prac in La Porte, Ind., where he was on the staffs o Holy Family Hospital and the *Fairview Hos* died in the *Memorial Hospital May* 1, aged 7 rupture of dissecting aneurism of the superior me teric artery.

Ahlbrandt, Charles G. C., Kirkwood, Mo.; Miss Medical College, St. Louis, 1895; died June aged 81.

Alford, Leland Barton ⊕ St. Louis; Washington versity School of Medicine, St. Louis, 1912; asso professor of neurology and psychiatry at St. University School of Medicine; served on the fa of his alma mater; member of the American Ps atric Association; veteran of World War I; assoc with St. Mary's Group of Hospitals, St. Louis Hospital, and the Barnes Hospital, where he died 14, aged 71, of acute myocardial infarction.

Ames, George Chester ⊕ Hollis, N. Y.; University Bellevue Hospital Medical College, New York 1924; on the staff of the Mary Immaculate Hos Jamaica; died in Amityville May 11, aged 6 coronary thrombosis.

Anderson, Edgar Walker ✠ Conroe, Texas; University of Arkansas School of Medicine, Little Rock, 1928; died in the Methodist Hospital, Houston, May 11, aged 55.

Anderson, Walter Marius ✠ Lompoc, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1929; member of the American Academy of General Practice; specialist certified by the American Board of Internal Medicine; on the staffs of the Santa Barbara (Calif.) Cottage Hospital and the Lompoc Hospital; died April 10, aged 53, of coronary disease.

Angus, Catherine Isabel, New York City; University of Wisconsin Medical School, Madison, 1934; on the staff of the St. Luke's Hospital; for many years physician in the Long Lines Department of the American Telephone and Telegraph Company; died in the University Hospital June 17, aged 48.

Arne, James A., Marion, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1922; member of the Massachusetts Medical Society; on the staff of the Lawrence Memorial Hospital in Medford; died in the Tobey Hospital, Wareham, May 5, aged 61, of coronary occlusion.

Ashworth, Robert Fraser ✠ Eclectic, Ala.; Hospital College of Medicine, Louisville, Ky., 1903; veteran of World War I; member of the American Urological Association; died in East Tallassee May 8, aged 74, of cerebral hemorrhage, arteriosclerosis and chronic myocarditis.

Babcock, Jay Blaine, Los Angeles; University of Nebraska College of Medicine, Omaha, 1925; veteran of World War I; at one time superintendent of the Hastings (Neb.) State Hospital; died May 25, aged 59, of peritonitis and cholecystitis.

Baber, James H., Huntington, W. Va.; University of Louisville (Ky.) Medical Department, 1895; an associate member of the American Medical Association; died June 11, aged 82.

Barcroft, John Woolverton, Waldport, Ore.; University of Oregon Medical School, Portland, 1919; also a graduate in pharmacy; died May 13, aged 68, of arteriosclerotic heart disease.

Barnwell, Columbus Hershel ✠ Chattanooga, Tenn.; Northwestern University Medical School, Chicago, 1933; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons, veteran of World War II; associated with the Baroness Erlanger and Memorial hospitals; accidentally drowned in a pond on his farm on Little Sand Mountain near Summerville, Ga., June 2, aged 52.

Bass, Farris Euestus, Lebanon, Tenn.; Meharry Medical College, Nashville, 1924; a veteran of World War I; died June 10, aged 65, of hypertension.

Beatty, Ernest Nutter ✠ Santa Barbara, Calif.; University of Cincinnati College of Medicine, 1920; member of the Ohio State Medical Association; formerly practiced in Cincinnati, where he served as president of the Cincinnati Obstetrical Society and as a member of the staffs of St. Francis and Deaconess hospitals; died in Louisville, Ky., June 8. aged 62.

Beck, Henry Walter ✠ Gray, Maine; University of Vermont College of Medicine, Burlington, 1927; veteran of World War I; on the courtesy staffs of the Central Maine General Hospital, Lewiston, and the Mercy Hospital and Maine Eye and Ear Infirmary in Portland; served two terms on the school board; died June 4, aged 63, of cancer of the liver.

Becker, Morris R., Cambridge, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1933; died June 10, aged 50.

Beckman, George Edwin ✠ Jacksonville, Fla.; Medical College of South Carolina, Charleston, 1909; specialist certified by the American Board of Anesthesiology; died in St. Vincent's Hospital March 27, aged 77, of cerebral hemorrhage, hypertension and chronic interstitial nephritis.

Benson, Iver Simeon, Portland, Ore.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; died May 23, aged 75.

Berrey, Ivan Columbus ✠ Birmingham, Ala.; Rush Medical College, Chicago, 1927; served on the faculty of Medical College of Alabama; on the staffs of the University and Baptist hospitals; died April 26, aged 58, of carcinoma of the pancreas.

Bickel, John Edward ✠ Fort Wayne, Ind.; Medical College of Indiana, Indianapolis, 1897; member of the staff, St. Joseph's Hospital, where he died June 23, aged 83, of coronary thrombosis and myocardial infarction.

Blair, Ezekiel Slaughter ✠ Gadsden, Ala.; University of Nashville (Tenn.) Medical Department, 1910; died May 28, aged 76, of bronchopneumonia.

Bockhorst, Arthur L., Milwaukee; Kansas City (Mo.) Medical College, 1899; died in the Milwaukee County Hospital June 24, aged 82, of diabetes mellitus.

Boddie, Julian Franklin, Milledgeville, Ga.; Meharry Medical College, Nashville, Tenn., 1913; associated with the Baldwin County Hospital, where he died June 18, aged 66, of cerebral hemorrhage.

Bondar, H. Kelliher, Brooklyn; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1932; member of the American Psychiatric Association: specialist certified by the American Board of Psychiatry and Neurology; associated with the Cumberland and St. John's Episcopal hospitals; died in the Queens General Hospital, Jamaica, May 25, aged 49.

Brady, Rolland Roy ⊛ Ainsworth, Neb.; University of Nebraska College of Medicine, Omaha, 1931; member of the American Academy of General Practice; on the staff of the Ainsworth Clinic and Hospital; died in Omaha June 28, aged 53.

Brady, Richard Randall, Miles City, Mont.; University of Nebraska College of Medicine, Omaha, 1925; lieutenant colonel in the medical corps, Army of the United States; surgeon of the U. S. Army's Neurnberg, Germany, sub-area; died in Berchtesgaden, Germany, May 1, aged 56, of coronary disease.

Breslin, Robert Henry, Warwick, R. I.; College of Physicians and Surgeons, Baltimore, 1915; member of the Rhode Island Medical Society; veteran of World War I; on the staffs of the Roger Williams General Hospital and St. Joseph's Hospital, where he died June 25, aged 68.

Bruninghaus, Charles Walter, Worcester, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1915; veteran of World War I; died May 29, aged 76, of coronary artery disease.

Burnes, Eugene Howard, Rochester, N. Y.; Albany Medical College, 1908; an associate member of the American Medical Association; member of the American Academy of General Practice; past-president of the Rochester Pathological Society; veteran of World War I; during World War II chairman of Draft Board number 550; served on the staffs of St. Mary's Hospital and the Highland Hospital, where he died May 20, aged 72, of acute cardiac dilatation.

Burt, Elmer Gordon ⊛ Magnolia, Ark.; University of Arkansas School of Medicine, Little Rock, 1932; member of the American Academy of General Practice; veteran of World War II; died in the City Hospital April 26, aged 49, of a heart attack.

Butler, John Culbertson ⊛ Laurel, Miss.; Memphis (Tenn.) Hospital Medical College, 1904; veteran of World War I; died in the Veterans Administration Center, Biloxi, May 8, aged 79, of emphysema.

Butzow, Theodore Frederick, San Diego, Calif.; Rush Medical College, Chicago, 1897; veteran of World War I; died in the Mercy Hospital May 31, aged 86, of fracture of the hip and pneumonia.

Chaffin, Emory Franklin ⊛ Toccoa, Ga.; Atlanta Medical College, 1914; died in the Hall County Hospital, Gainesville, May 21, aged 71, of a heart attack.

Chambers, Dorsey Perry, Stilwell, Okla.; Barnes Medical College, St. Louis, 1896; died in the City Hospital May 6, aged 84, of cerebral hemorrhage.

Child, Florence Chapman, Deerfield Beach, Fla.; Johns Hopkins University School of Medicine, Baltimore, 1909; died in the North Broward General Hospital, Fort Lauderdale, March 30, aged 71, of carcinoma of the breast with metastases.

Cohen, Emanuel Samuel ⊛ Redwood City, Calif.; C lumbia University College of Physicians and Surgeo New York City, 1943; certified by the National Bo of Medical Examiners; specialist certified by t American Board of Internal Medicine; served as a sistant clinical professor of medicine at the Univers of California School of Medicine in San Francisc veteran of World War II; on the staff of the Sequo Hospital; died May 31, aged 37.

Clark, Carl George, Burlington, Iowa; State Unive sity of Iowa College of Homeopathic Medicine, Io City, 1905; died in St. Francis Hospital April 17, ag 80, of cardiovascular renal disease.

Cleere, Reuel C., Danville, Ala.; Birmingham Medi College, 1909; died in the Bryce Hospital, Tuscaloo May 1, aged 72.

Conley, Byron Richard, Salyersville, Ky.; Univers of Louisville (Ky.) Medical Department, 1907; me ber of the Kentucky State Medical Association; d in Ashland May 3, aged 74, of nephritis.

Cooper, Thomas Logan ⊛ Logansport, Ind.; Univ sity of Pittsburgh School of Medicine, 1912; on staffs of St. Joseph's Hospital and the Memorial H pital, where he died May 20, aged 74.

Crawford, Lewis B., New Iberia, La.; Medical Dep ment of Tulane University of Louisiana, New Orle 1905; fellow of the American College of Surge associated with the Iberia General Hospital, where died May 17, aged 74.

Cretzmeyer, Charles Henry ⊛ Algona, Iowa; S University of Iowa College of Medicine, Iowa C 1901; on the staff of St. Ann Hospital, where he d May 6, aged 78, of a heart attack.

Cummings, Claude Wiggins, Colonel, U. S. Army, tired, San Francisco; Vanderbilt University School Medicine, Nashville, Tenn., 1912; service member the American Medical Association; veteran of Wo War I; entered the medical corps of the U. S. Army 1917; retired Sept. 30, 1944; died in the Lettern Army Hospital May 6, aged 76.

Finady, William Aaron, Bethlehem, Pa.; Medi Chirurgical College of Philadelphia, 1910; membe the Medical Society of the State of Pennsylva fellow of the American College of Surgeons; on staff of St. Luke's Hospital, where he died June aged 69.

Garrison, Amos Rule, Byington, Tenn.; University Louisville (Ky.) Medical Department, 1904; past-pr dent of the Knox County Medical Society; for m years member of the county school board; died in Fort Sanders Presbyterian Hospital, Knoxville, J 26, aged 78.

Hall, Henry Francis, Chicago; Meharry Medical C lege, Nashville, Tenn., 1909; died in the Manteno (State Hospital April 14, aged 80.

Hankins, Frances Cantrall, Alhambra, Calif.; Northwestern University Woman's Medical School, Chicago, 893; died July 6, aged 96, of coronary heart disease.

Harrelson, Rose Cranse Jr., Tabor City, N. C.; Jefferon Medical College of Philadelphia, 1945; veteran of World War II; on the staff of the Loris (S. C.) Community Hospital; accidentally drowned in Myrtle Beach, S. C., June 27, aged 36.

Hatcher, Martin Armstead, Hamlet, N. C.; Medical College of Virginia, Richmond, 1918; member of the Medical Society of the State of North Carolina; past-president of the Richmond County Medical Society; member of the Richmond Selective Service Board; veteran of World War I; on the staff of the Richmond County Memorial Hospital, Rockingham, and the Hamlet Hospital; died June 23, aged 66.

Hennell, Herman ⊕ New York City; Long Island College Hospital, Brooklyn, 1920; member of the American Trudeau Society; served on the faculty of Columbia University College of Physicians and Surgeons; on the staff of the Mount Sinai Hospital; died July 1, aged 68, of coronary disease.

Holtzhausser, George J., Philadelphia; University of the South Medical Department, Sewanee, Tenn., 1899; also a graduate in pharmacy; an associate member of the American Medical Association; died June 30, aged 84.

Hutchinson, James Thomas ⊕ Lubbock, Texas; Tulane University School of Medicine, New Orleans, 1909; veteran of World War I; past-president of the Lubbock-Crosby Counties Medical Society; member of the board of trustees of the Lubbock Independent School District for a 35-year period, 33 of which were spent as board chairman; formerly director of the First National Bank of Lubbock; associated with the Methodist Hospital, where he died June 22, aged 76.

Jellis, Walter, Somerville, Mass.; Tufts College Medical School, Boston, 1920; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the Massachusetts Medical Society; veteran of World War II; died May 12, aged 59, of heart failure.

Kauffmann, Louis John ⊕ Millville, N. J.; Jefferson Medical College of Philadelphia, 1910; on the staff of the Millville Hospital, where he died June 24, aged 68.

Koskela, Albert Leo ⊕ Santa Cruz, Calif.; University of Minnesota Medical School, Minneapolis, 1946; member of the American Academy of General Practice; died July 2, aged 37.

Leary, Maurice Thomas ⊕ Meadville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1917; on the staffs of the Meadville City Hospital and the Spencer Hospital, where he died June 27, aged 61, of heart disease and hypentension.

Leavitt, Harry Clayton, Long Beach, Calif.; Chicago Medical School, 1938; service member of the American Medical Association; member of the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; veteran of World War II; associated with the Veterans Administration Hospital; died May 31, aged 45, of coronary thrombosis.

Leopold, Raymond Sylvester ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1906; formerly executive vice-president and trustee, Hahnemann Medical College and Hospital; served on the state board of medical education and licensure; died in the Germantown Hospital June 30, aged 73.

Lesses, Max ⊕ Salem, Mass.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1905; on the staff of the J. B. Thomas Hospital in Peabody; formerly on the staff of the Union Hospital, Lynn; died in the Beth Israel Hospital, Boston, July 4, aged 75, of carcinoma of the pancreas.

Malley, George Calvert ⊕ Zanesville, Ohio; Long Island College of Medicine, Brooklyn, 1930; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; past-president of the Good Samaritan Hospital staff; served as chief of pediatrics at Bethesda Hospital; died June 12, aged 53.

Marks, Julian Barnett ⊕ Los Angeles; University of Illinois College of Medicine, Chicago, 1918; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; died in the Santa Monica (Calif.) Hospital April 5, aged 65, of coronary thrombosis.

Martin, Ruben Ferdinand, San Antonio, Texas; St. Louis University School of Medicine, 1910; veteran of World War I; died in the Veterans Administration Center, Temple, May 21, aged 72.

McFarland, George Edwin ⊕ Los Angeles; University of Minnesota Medical School, Minneapolis, 1942; veteran of World War II; at one time health officer of San Luis Obispo County; on the staff of the California Lutheran Hospital; died in the Centinela Valley Community Hospital, Inglewood, Calif., June 23, aged 45, of seminoma with metastasis.

Meharg, Shelton Theodore, Anniston, Ala.; Memphis (Tenn.) Hospital Medical College, 1900; during World War I served as acting assistant surgeon in the U. S. Public Health Service; served as director of Anniston National Bank; died June 19, aged 78.

Milligan, Edd Fitch ⊕ Geary, Okla.; Denver and Gross College of Medicine, Denver, 1905; veteran of World War I; died June 16, aged 81, of pneumonia.

Moore, Robert W., Memphis, Tenn.; Meharry Medical College, Nashville, 1914; died May 7, aged 71, of cerebral hemorrhage and hypertension.

FOREIGN LETTERS

AUSTRIA

Unusual Case of Pleurisy.—At the meeting of the Vienna Society of Physicians on June 21, A. Sattler reported the case of a 62-year-old physician who had had amebic dysentery in 1941. The patient fell seriously ill in December, 1956, with diarrhea, abdominal pains, and fever. Treatment with antibiotics was without result. The patient was admitted to the hospital where the diagnosis of sigmoiditis and diverticulitis and a hemorrhagic exudative pleurisy on the left was made. Thoracoscopy was requested because the patient's cachexia and the hemorrhagic exudate suggested cancer. The thoracoscopy was performed with difficulty because of the basal sacculation. Finally sufficient space for endoscopy was made by aspirating 300 cc. of exudate and replacing it with air. There was no evidence of pleurocarcinoma but rather of true pleurisy. The most remarkable findings were two cystoid formations of the dorsal part of the lungs, which were inflated at inspiration and retracted in a funnel-shaped form at expiration. A blood clot was observed on top of one of these formations. This finding ruled out a malignant exudation. The cystoid formations were believed to be residues of pulmonary abscesses. The cause of the disease could not be determined by inspection. Because of the patient's history of amebiasis, a parasitologist was called in and he was able to identify trophozoites of Entamoeba histolytica in the pleural fluid and rectal smears.

Chemotherapy of Malignant Tumors.—At the sixth Austrian Cancer Meeting held in Vienna in May, H. J. Wolf and N. Gerlich (Bielefeld) said that they had used ethyleneimine quinone (E-39) in treating 265 patients suffering from all kinds of malignant tumor. Only patients with inoperable tumors or with metastases were included in this series. Since it is important to have the cytostatic drug act on the tumor in a most concentrated form and as long as possible, the drug was injected directly into the tumor. A temporary disappearance of the tumor may thus be obtained and this without the formation of necrosis or abscess. Toxic manifestations are minimal when the drug is used in this way, but if it is given intravenously, not only is proliferation inhibited in the tissue of the tumor but also the formation of leukocytes, erythrocytes, and thrombocytes in the marrow and reproductive cells in the gonads is inhibited, and growth in children may be hindered. It appears, therefore, important to give large doses for a short time and to repeat the treatment at intervals after the restoration of the leukocytes.

E. Bauer (Vienna) said that in using E-39 it is important that this treatment be given at the optimum time. Autointoxication can be prevented by the removal of the already necrotic tumor masses This relieves the pain of tension and produces an improvement of the general condition. The leukocyte count is not a reliable guide to dosage. The bone-marrow inhibitory effect of the drug and the leukocytosis stimulated by the necrotic tumor ac antagonistically. A complete withdrawal of the drug or special therapeutic measures were never necessary, not even in patients with a marked leukopenia. Treatment with E-39 must be given intravenously for a long period (the exact duration is still undetermined), if one does not want to risk a widespread metastasis and an intractable loca recurrence.

A. Bucher (Vienna) said that seven patients with carcinoma of the bladder received local treatmen with the drug and in three others it was injected intravenously. The growth of the tumor appeared to be checked for a while in some patients, and in others the tumor became smaller. While this treatment was being given, tenesmus rapidly subsided and the patients felt better and gained weight.

F. Hesse reported that, for three years in Norderney, treatment with E-39 has been used in patients with cancer. The patients were given 5 mg. daily for several months and in one patient for over two years. In most patients the result was good. No damage to the myelopoietic system occurred, in spite of the prolonged treatment.

J. Kretz said that the toxicity of this drug as well as that of the disintegration products of the tumor should be kept in mind. Intravenous doses of 10 mg. of E-39 three times a week may quickly lead to an inhibition of growth. It is unwise to attempt to obtain a softening of the tumor in the shortest possible time. Impairment of the blood picture makes it imperative to stop intravenous injections and direct injection into the tumor may lead to bleeding or perforation. A rapid disintegration of the tumor may also stimulate its growth. A longer treatment with smaller doses is, therefore, preferable. Sudden withdrawal of the drug may also be disastrous. Capsules for oral use may be given for a slow withdrawal of the drug. Tolerance for and efficiency of this treatment are increased by simultaneous general treatment with vitamins and dietary and medicinal protection of the liver.

P. Wurnig (Vienna) said that since drugs do not cure patients with extensive or advanced carcinoma, they were used as postoperative treatment of carcinomas radically operated on. An efficient but harmless drug that is easy to apply is required. Nitromin, a derivative of nitrogen mustard, was therefore used. The experiment was carried out in selected patients with carcinoma of the bronchi, since these patients have the most rapid downhill course. During the experimental period, all these patients underwent preventive treatment with Nitromin. The treatment consisted of three series of injections, each with a total dose of 700 to 800 mg. administered at intervals of from 6 to 8 weeks. The drug was well tolerated. The results showed that six months after the operation the life expectancy was 20% longer than in the untreated control group; one year later the life expectancy was 10% longer.

Radiotherapy of Tumors.—At the same meeting, A. Kohler (Munich) said that the value of preoperative irradiation of patients with cancer of the breast is now established. Of 459 patients who had preoperative irradiation of carcinoma of the breast in every stage, 41% were still living 10 years later. Delays of operation of one and one-half to five months are therefore allowed. Each daily dose devitalizes or inactivates cells of the carcinoma that are just dividing. Healing of the wound and recovery are normal, since a general but also a local recovery takes place between irradiation and operation. Favorable results with preoperative irradiation of patients with cancer of the breast were also obtained by W. Zaunbauer (Vienna), F. Melnizky (Salzburg), and E. Scherer (Marburg-on-Lahn) who pointed out that the skin condition is better with preoperative irradiation and that local recurrences and pulmonary fibrosis are less frequent. Although Melnizky does not use the usual interval between irradiation and subsequent amputation of the breast, his results are equally satisfactory and healing occurs without complications.

H. Stech said that the body is divided into six fields and every day one field is irradiated with 15 r. Undesirable general reactions and changes in the blood findings are thus reduced to a minimum. Duration and intervals of the irradiation depend on the blood findings and the prothrombin level. The patients are given up to four treatments with a total dose of 720 r at longer and longer intervals for one year. Teleroentgen-ray therapy combined with local inflammatory irradiation is particularly desirable for patients with generalized carcinosis, for patients in poor general condition with inoperable bronchial carcinoma, and, as prophylactic postoperative follow-up, in patients with a special risk of metastasis. In patients in whom recurrence cannot be prevented, prolonged disability associated with pains and increasing cachexia may be avoided by using this treatment in small doses. Death occurs rapidly after there has been a period of relative well-being.

K. Fochem (Vienna) said that carcinomas, stages 1 and 2, of the cervix uteri, as well as the operable carcinoma of the corpus uteri, were operated on and intensively irradiated using two abdominal and two gluteal fields. Inoperable carcinomas, stages 3 and 4, of the uterus were treated with 15,000 r of radium in three treatments. Following radical excision of ovarian and tubal carcinomas, patients are given postoperative x-ray therapy and local applications of radioactive gold. A patient with ovarian carcinoma whose operation was palliative is given one irradiation with 2,400 r. In patients with vulvar carcinoma, operation and irradiation are combined. It is possible to give up to 20,000 r with the filtration method. Massive doses of irradiation are essential, since a recurrent carcinoma after small doses of x-ray is resistant to therapy.

Serum Iron, Copper, and Transferrin Levels in Malignant Diseases.—At the same meeting, E. Gisinger said that in most patients with malignant diseases a decrease of the serum iron and transferrin level and an increase of the serum copper level occur simultaneously. This is particularly true in patients with Hodgkin's disease. If bleeding and, therefore, iron deficiency occurs, an increase of the transferrin level occurs, in spite of the presence of a malignancy, as an unequivocal diagnostic symtom of the iron deficiency. The individual leukosis can be distinguished to a certain degree since in patients with chronic leukemia the iron level in the serum is decreased, in those with the lymphocytic form the serum copper level is increased, and in those with granulocytic leukemia the levels are normal. Acute granulocytic leukemia is characterized by increased levels of copper and iron. Decrease of the transferrin level is found in patients with every form of leukemia. Patients with beta-myeloma have a normal serum copper level, whereas those with gamma-myelomas have an increased serum copper level. In 18 of a series of 23 patients with Hodgkin's disease, good results were obtained by cytostatic treatment. The size of the tumor decreased, the manifestations of Hodgkin's disease subsided, subjective complaints disappeared, and in some there was a complete regression of the inflammatory glands. The serum iron, copper, and transferrin levels returned to normal in three of these patients after treatment. The patients remained without recurrence four or more months. In five other patients, who showed no clinical improvement, the serum iron, copper, and transferrin levels did not return to normal.

Melanoma.—At the same meeting, G. Eichelter (Vienna) said that even a test excision in patients with pigmented nevi and melanoma may lead, under certain circumstances, to metastasis, if malignancy is already present. No pigmented mole should be operated on without prophylactic irradiation. As far as is known r-ray contact irradiation does not produce metastasis. Up to 30,000 r may be applied if necessary. This therapy also gives excellent cosmetic results. Eventually additional irradiation of the regional lymph nodes may be given. If the skin disease is unchanged after the irradiation, excision may be performed more or less extensively under the protection of the previous irradiation with essentially less risk. Further treatment depends on the histological examination.

FINLAND

Deafness.—Siirala and Lahikainen (*Nordisk medicin*, July 4, 1957) examined the employees of a ship-building company, 185 of whom were exposed to loud noise while at work. They were classified in four groups according to the length of their employment. The first group included the workers whose exposure to industrial noise had lasted 10 years or less and the fourth group those whose exposure had lasted more than 30 years. It was found that the detrimental effect of noise continues as long as exposure to it lasts, and the worker does not get accustomed or inured to noise with the passage of time. After a person has been one year in a noisy occupation, his hearing has deteriorated as much as in three normal years. In other words, taking into account that these two types of deterioration of hearing are much alike, it may be claimed that the aging effect on hearing is three times as rapid in noisy as in quiet occupations.

Herpes Zoster Ophthalmicus.—The eye department of Mellersta Hospital, Jyväskylä, serves a population of about 250,000 inhabitants and in the last three years has had occasion to deal with five cases of herpes zoster ophthalmicus. In *Nordisk medicin* for June 13, Dr. A. Oksala points out that the variety of remedies for this disease reflects the want of any specific remedy for it. He has not obtained satisfactory results with salicylates, posterior pituitary injection (Pituitrin), or ergotamine tartrate, and he has found that the value of antibiotics depends only on the elimination of secondary infections. Cortisone and hydrocortisone have been used only locally, and the effects have been satisfactory. The combination of cortisone with mydriatics is an improvement on earlier methods. Good results have also been obtained with injections of a liver extract with the cessation of pain and fever occurring in 24 hours. Should a second injection fail to achieve this effect, the treatment should be discontinued. Such injections apparently promote healing of the skin eruption and prevent postherpetic neuralgia.

Postural Hypotensive Collapse Caused by Chlorpromazine.—Stenbäck and co-workers (*Nordisk medicin*, May 16, 1957) studied the effects of chlorpromazine on 28 patients with special reference to the development of postural hypotensive collapse. They were subjected to Schellong's test which provides for measurements of blood pressure when the patient is in bed, standing up, and lying down. It was found that orthostatic hypotensive reactions to chlorpromazine given by injection four times daily take place mainly within the first 48 hours, but such reactions may occur even after 10 to 13 days. It was hoped that these examinations would give a clue to the likelihood of postural hypotensive collapse in a given case before chlorpromazine treatment was instituted. The need for such a prognostic clue is great because such collapse may prove fatal.

PERU

Institute of Biochemistry.—On March 23 the Institute of Biochemistry of the Faculty of Medicine of Lima was dedicated. Albert Baird Hastings, professor of biochemistry of the Harvard University Medical School, and representatives of the Kellogg and the Rockefelle foundations, two institutions that have contribute technical and financial assistance, attended the ceremony. Prof. Alberto Guzmán Barron has been name director of this institute.

Council on Mental Health.—In March the Ministry Public Health created the Council of Mental Healt with Sebastián Lorente as president. Juvenile deli quency, a growing problem in Peru, will be studie intensively. Other pressing problems are the provisio of more mental hospitals and the increasing of th availability of outpatient psychiatric services.

Mobile Medical Units.—Three mobile medical uni have been purchased by the National Fund of Healt and Social Welfare for about $40,000 each. They wi be principally used for mass x-ray examination of th lungs, but they can also give minor medical, surgica and dental care. Most of their work is being carrie out in the poor suburbs of Lima.

Infectious Mononucleosis.—Dr. Castro Hoyos reporte on 15 patients with infectious mononucleosis, 11 whom were treated with prednisone or prednisolo (*Revista médica del Hospital Obrero*, vol. 5, no. 3- Dec., 1956). The age of the patients ranged from 2 14 years. The most prominent manifestations we fever, cervical or generalized adenopathy, sore throa bronchitis, and rash, in that order. In the 11 patien treated with hormones, dramatic and prompt relief symptoms was noted, the fever disappeared within to 8 hours of starting the therapy, the general malais and sore throat subsided completely, the hypertrophie lymph nodes became smaller, and pain and tenderne diminished or disappeared. The author called attention, however, to the absence of significant hematological changes after hormonal therapy. Furthermore when given early, both hormones failed to prevent the ppearance of the adenopathy and the rash. Cough was ot affected by the hormones. The theoretical ground or the use of these steroids in the treatment of infec- ious mononucleosis is the well-known lympholytic ffect accounted for by their glycocorticoid activity. The initial dose was 10 mg. four times daily. This was educed slowly until a daily maintenance dose of 5 ng. was reached by the 14th or 15th day.

Medical Women's Association.—The first Latin-Amer- can medical women's association has been organized n Peru. The installation ceremony took place on July 8 at the Faculty of Medicine of Lima and was attended by the president of the nation, Manuel Prado, the minister of public health, and many prominent physi- ians. The membership of the organization is about 00, and its president is Dr. Suzy Roedenbeck, auxili- ary professor of neuropathology at the Faculty of Medicine, San Marcos University. The purpose of the association will be to encourage and protect the medi- cal interests of the Peruvian woman.

Chlorpromazine and Chronic Psychoses.—Dr. Querol and co-workers (*Revista de neuro-psiquiatría*, vol. 19, no. 4, Dec., 1956) reported on the treatment of 26 pa- ients with chronic schizophrenia and 6 with chronic nanic-depressive psychosis with chlorpromazine. Most previous reports on the value of this drug in mental conditions have shown the following: 1. It has a tran- quilizing and sedative action on the patient's psycho- notor agitation regardless of the origin of the agita- ion. 2. In the confusional states it reduces both the confusion and the delirium, and patients become well oriented and attentive. 3. It causes hallucinations to disappear. 4. In depressed states it causes the anxiety, feelings of indignation, and suicidal impulses to dis- appear. 5. In many patients with schizophrenia unre- sponsive to conventional treatment it causes either mprovement or a social or complete remission of the disease. 6. Withdrawal of the drug is frequently fol- lowed by relapse, but good response is again obtained shortly after the therapy is resumed. The patients in the authors' series underwent chlorpromazine treat- nent alone or in combination with electroshock thera- py and sedative medication. All patients received from 100 to 600 mg. of chlorpromazine daily long enough to modify their symptoms or for at least three months. Twenty-two of the schizophrenic and all of the manic- depressive patients had suffered from the disease more than one year. The remaining four schizophrenic pa- tients had been ill from 6 to 12 months. In all the pa- tients other previous treatment had failed. In the schizophrenic group, six patients were improved and four gained social remission and seven complete re- nission. Of the rest, eight were unchanged and one died. Four complete remissions and two deaths were observed in the manic-depressive group. None of the patients who died showed any benefit from the treatment, but no death could be directly attributed to the drug.

Catatonic and paranoid schizophrenia responded better to the treatment than did the simple and the hebephrenic types, and, in general, the results tended to be better in patients whose disease was of short duration. Recurrences of the symptoms occurred in three patients, but resumption of the treatment brought about prompt improvement. The authors believe that in refractory cases it is advisable to give the drug for as long as six months. Parkinsonism was the most frequent untoward side-effect observed in the patients treated with chlorpromazine. It was noted in 13 of the schizophrenic group and disappeared when the dose was diminished. In only a few patients was it necessary to discontinue the treatment temporarily. Obstinate constipation was another frequent secondary effect. Neither hepatic nor dermal complications were noted. Bronze pigmentation of the face was observed in seven patients. This side-effect, not reported before, cleared up slowly after the treatment was finished. The authors concluded that chlorpromazine must be regarded as the drug of choice for patients with endogenous psychoses, even though chronic. On the other hand, they pointed out that the psychological modifications produced by chlorpromazine do not equal those elicited by leukotomy.

Sanatorium for Tuberculous Children.—Peru's one and only tuberculosis sanatorium for children under 14 years of age was opened in 1950. Because its capacity was small (100 beds), most tuberculous children still had to be treated in a general hospital, with the consequent overcrowding of the children's wards in the latter. In March a 200-bed addition to the sanatorium was started. The new building will also include additional x-ray and laboratory equipment and a new electric-power plant.

UNITED KINGDOM

Annual Cancer Review.—The two main features of the annual report of the British Empire Cancer Campaign for 1956 are the increasing amount of work being carried out on the association between smoking and lung cancer and the rapid extension of the clinical uses of isotopes. Professor R. D. Passey and co-workers have failed, in spite of persisting efforts, to demonstrate any carcinogenic properties in the tar from cigarettes when applied to the skin of mice. A group of rats has been injected subcutaneously with English cigarette tar, and several series of hamsters have had a similar tar instilled into the trachea. In no instance in either species has any tumor arisen as a result. In further experiments in which groups of hamsters were exposed to the smoke of cigarettes for long periods daily in smoking machines some of the animals survived for 20 months without any evidence of lung or other cancer. Although tracheitis, bronchitis, and bronchiectasis have been observed in rats subjected to the same condition, no tumors have arisen.

In other experiments, three groups of rats have been exposed, over a period of 10 months, to atmospheres containing cigarette and coal smoke and to a combination of the two. In none of these animals has any sign of neoplastic change occurred. The lyophilic, lyophobe, and phenolic fractions of tobacco tars have been painted on the interscapular region of 250 mice, and a crude tobacco tar has also been injected subcutaneously in 50 mice. Although the tests have been in progress for 21 months, no tumors have developed in either the painted or injected series. Professor Passey says: "During the last three years all those in Great Britain working on the effects of exposure to cigarette smoke or its tars have been consistent in reporting complete failure to demonstrate any carcinogenic action in a variety of laboratory animals, in spite of the proved presence of traces of the carcinogenic hydrocarbons in cigarette tars. This is in marked contrast to the reports from Wynder and his co-workers in America (1953, 1955). The difference in these results must be in the tars."

E. Boyland and D. C. Williams have continued their investigations of urinary beta-glucuronidase. Patients with cancer of the stomach, esophagus, rectum, breast, testis, and prostate have a higher than normal urinary beta-glucuronidase level, but those with cancer of the colon, thyroid, and kidney excrete normal amounts. A greatly increased urinary beta-glucuronidase activity is exhibited by patients with leukemia, Hodgkin's disease, cancer of the bronchus and prostate, and various types of cancer of the bladder (including those who have had their tumors removed and at the time of investigation have no active tumor). Prolonged treatment of patients with cancer of the prostate with diethylstilbestrol causes a great increase in beta-glucuronidase excretion. Since some nonmalignant diseases such as gastric ulcer, bronchitis, and coronary thrombosis also cause increase in beta-glucuronidase activity, the use of such activity as a diagnostic test for cancer is impracticable. Some evidence of therapeutic effect was obtained from the use of 2-chloro-ethyl methane sulfonate in 3 of 22 patients with terminal malignant disease. Forty-seven patients were treated with NN-di-(2-chloroethyl)-*p*-amino-L-phenyl alanine. In general, clinical results were disappointing, but there was recent evidence that intravenous administration may be much more effective. Three patients with chronic granulocytic leukemia have been treated with dimethyl busulfan. All have responded and are in remission.

The physics department of the Institute of Cancer Research reports the installation of the first British cesium unit, which was loaded in October with about 1,400 curies of cesium sulfate encapsulated in platinum. Preliminary studies were also made for a small cesium-137 unit suitable for treating lesions of the head and neck. It is apparent that, for this purpose, cesium-137 has several advantages over x-rays, radium, or cobalt-60. Yttrium-90 was used for radiation hypophysectomy, particularly in patients with mammary carcinoma. Two or three rods, 1.3 mm. in diameter and 4 mm. long, made of sintered yttrium oxide, each of activity of about 3 mc., are introduced into the pituitary under image amplifier control. Improved eye applicators of strontium-90 and yttrium-90 have been developed. These are satisfactory in clinical use, are durable, and have no constituents which may break down under irradiation. Work has continued on the applications in clinical radiography of low energy gamma-emitting isotopes, particularly radioactive xenon-133. Using high activity xenon sources, good radiographs of fractures of the wrist and ankle have been obtained with exposures of a few seconds. A technique of scintillation counting of alpha particles was developed for the measurement of low alpha activities in solid, liquid, or gaseous samples. This technique is proving remarkably simple, flexible, and consistent and is being used to estimate alpha activity in bones of persons who have lived in various environments and who have been exposed to special types of occupational hazard and in a variety of foodstuffs, soils, artificial fertilizers, and pharmaceutical substances.

New apparatus was designed and built for the intravesical administration of radioactive colloidal gold for the treatment of patients with multiple superficial papillary tumors of the bladder. A surface dose to the mucosa of 7,000 to 8,000 r (90% irradiation) is delivered over a period of 6 to 12 weeks in three separate treatment sessions lasting about three weeks each. In only a small proportion of patients so treated is the bladder rendered completely tumor free; in the remainder the tumor regression is usually of such an order that the small residual lesions can readily be treated by periurethral diathermy. Eighty patients with polycythemia were treated with phosphorus-32, the dose per injection ranging from 3 to 12 mc. The largest amount given to one patient was 47 mc. Ten of these patients died—five from intercurrent disease and five with leukemia or polycythemia present. In a program of research into calcium metabolism in malignant and nonmalignant bone disease, three patients have been studied so far. In one, radiostrontium was injected with the radiocalcium, and it was found that the 48-hour urinary excretion of strontium was five times as great as that of calcium.

At the Middlesex Hospital, 70 patients with cutaneous carcinoma induced by ionizing irradiations were studied. There were almost equal numbers of squamous and basal carcinomas which had arisen in patients previously treated by radiotherapy or exposed occupationally to ionizing irradiations. The most common disease so treated was lupus vulgaris, in which squamous cell tumors were found more often than rodent ulcers when malignant disease ensued. There were only 4 patients in whom squamous cell carcinoma developed in lesions of lupus vulgaris as compared to 16 in whom radiotherapy had been used in treating the lupus. Rodent ulcers were seldom seen after irradiation of lupus vulgaris lesions but appeared after depilation for ringworm of the scalp, sycosis barbae, or hypertrichosis of the face. In addition, four patients who were successfully treated by surgery and radiotherapy for mammary cancer developed rodent ulcers in areas of roentgen-ray dermatitis over the chest.

At St. Bartholomew's Hospital, intrapulmonary inoculations of known carcinogens and tobacco tar were made into the lungs of white rats, the material being injected directly around the root of the lung after the thorax had been opened. After methylcholanthrene had been injected, sarcoma occurred in 12 of 15 rats and after benzpyrene had been injected, sarcoma developed in 10 of 17, and in one an epidermoid carcinoma developed. In the series injected with methylcholanthrene, the average time between the inoculation and the death of the animals was 257 days, and in the series injected with benzpyrene, the time interval was 254 days. The same technique was used in investigating tobacco tar from a smoking machine and from a proprietary cartridge type of filter on sale in this country and believed to contain granules of silica-gel. About 10 cigarettes per filter were smoked by human subjects, the filters thereafter being washed out with acetone. Smoking-machine tar produced no tumors in a series of 10 rats, though the average time the rats lived was 464 days. Tar from the filters was injected into the lungs of eight rats; it produced one spindle-cell sarcoma in a rat that lived 607 days and one oat-cell cancer in a rat that lived 506 days.

Analyses of 39 brands of cigarettes from Austria, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, Italy, Norway, Poland, Rhodesia, Spain, Switzerland, United States, and Yugoslavia show that, as one passes eastwards in Europe, there is a fairly uniform decrease in the arsenic content of a cigarette weighing about 1 Gm. from as much as 100 mcg. to 1 mcg. or none. This is almost certainly due to the admixture of decreasing amounts of tobacco from the United States with increasing amounts of locally grown tobacco classed as "Turkish." Analysis of one of the most popular brands smoked in this country shows a fall in arsenic content from between 25 and 100 mcg. per cigarette in 1948-1949 to between 1 and 2 mcg. at present. This change appears to be due to the gradual abandonment of arsenical insecticidal sprays by tobacco growers in the United States.

At the Westminster Hospital, high-dosage pituitary seeding with gold radon seeds has been given up because of the poor results (average postoperative survival 3 months) and the number and severity of complications attending the procedure. As an adjunct to surgical hypophysectomy, however, radon seeds are left in the pituitary fossa. Sodium liothyronine combined with neomycin has been used, with encouraging results, as a local application in five patients with radiation necrosis. A new method of investigating the colloidal properties of urine has been evolved to study the protective action of such colloids. Preliminary results indicate that high concentrations of albumin or of mucoprotein are always associated with a high protective activity. This has been noted particularly in urines from patients with various malignant conditions, some of which have high mucoprotein levels. At lower mucoprotein levels, however, no correlation was present, and some pathological urines with normal protein and mucoprotein levels had a protective activity much above normal. The Marie Curie Hospital reported a 10-year follow-up of cancer of the cervix and of the body of the uterus treated by radium or a combination of radium and x-rays. Of 1.829 patients with cancer of the cervix, the 10-year survival rate was 30.2% of the patients treated, ranging from 69.7% for those in stage 1 to 4.4% for those in stage 4. The corresponding figures for the 308 patients with cancer of the body of the uterus were 36.4%, ranging from 86.4% to 13.4%. The records of this hospital showed that carcinoma of the vagina is a disease of later life, the greatest incidence being in the seventh and eighth decades. Thus, of the 79 patients treated in the hospital, 32 were in the seventh decade and 25 in the eighth decade.

St. Mark's Hospital reported that in a series of 4,500 patients with cancer of the rectum and colon, the operability rate was 75.6%, but in the first five years (1928-1932) it was 47.7% and reached 93% in the years 1953-1955. This steady increase in the proportion of patients operated on was attributed to the growing conviction that surgery not only prolongs life but also improves it. In a series of 120 colectomies undertaken for the treatment of ulcerative colitis, unsuspected cancer was found in seven cases, an incidence of 5.8%. A study of the relationship of carcinoma of the rectum and pregnancy indicated that pregnancy does not adversely affect the course of carcinoma of the rectum and that there is no indication for therapeutic abortion except when infection is anticipated and in some inoperable cases. Patients with carcinoma of the rectum diagnosed during pregnancy should be treated in the same way as those who are not pregnant, except that, when the diagnosis is made in the last two months of pregnancy, operative treatment must be delayed until after delivery, which may be performed before term by cesarean section.

At the Hospital for Sick Children, 28 patients with histologically verified neuroblastoma were treated with vitamin B_{12}, the dosage in most cases consisting of 1 mg. given intramuscularly on alternate days for a period of two years when possible. Most of these children were selected for this treatment because no other mode of therapy offered any prospect of arresting the disease. Of these 28 children, 13 died without showing any significant response. The rest all showed definite evidence of tumor arrest or regression. In nine patients this was maintained for periods of from seven months to six years from the inception of treatment and all nine were alive when last seen. The observation of regressive phenomena in 50% of the patients treated in this series is greatly in excess of that occurring spontaneously (probably 1 to 3%). Regression was observed only in those with a clinical onset in infancy. There were only two instances of remission in the older age-group, despite the fact that the latter represented 50% of the total series.

P. M. F. Bishop is investigating the alleged carcinogenic effect of prolonged administration of estrogens by following up a series of 840 patients who, between 1937 and 1953, had a minimum of six months' treatment with estrogen. Of the 420 patients so far traced, only one had adenocarcinoma of the uterine body, and one had carcinoma of the breast. Ten women have died, and in none of these was there either a mammary or genital carcinoma. A further 220 patients with a definite history of metropathy or menorrhagia, i. e., patients with an excessive amount of endogenous estrogen, are being studied. Of the 120 so far traced, 38 (30%) have undergone hysterectomy; 8 showed definite evidence of cystic glandular hyperplasia; and 8 showed some evidence of hyperplasia. None had any evidence of malignancy. Another approach to the problem was through a study of 88 unselected patients with carcinoma of the uterine body. Only three of these had received estrogen therapy for more than a year preceding the diagnosis of malignancy.

Preliminary results of investigations into the smoking habits of women with lung cancer living in urban and rural areas of North Wales, Cheshire, and Lancashire, according to Percy Stocks, support the previous findings for men that both smoking and urbanization are independently related to lung cancer mortality.

A report on the conference on estrogen methodology, organized by the British Empire Cancer Campaign, stresses that any satisfactory quantitative estrogen methods must be very complex and technically difficult and that therefore they should not be lightly undertaken with inadequate facilities. The two currently used methods critically examined at the conference are unsuitable for routine use in a hospital laboratory. They were designed for use in specially equipped and staffed laboratories, as the precision and accuracy of which they are capable can only be attained under these conditions. The publication of results obtained by any method for the determination of urinary estrogens by workers who have not themselves determined the precision and accuracy of that method is to be deplored.

Family Physicians Feel Let Down by Some Consultants.—Sir Russell Brain, past-president of the Royal College of Physicians and one of the joint chairmen of the doctors' negotiating committee, in the recent claim for a 24% pay increase, was criticized at the British Medical Association's annual meeting at Newcastle-upon-Tyne. A split in the profession was feared. Many family physicians believed that, in their dispute with the government, they had been let down by some of the specialists of Harley street. The charge against Sir Russell was that he had indicated that, in the event of pay talks with the government breaking down, the decision as to the action to be taken would not be made by the B. M. A. alone. In conversation afterwards, many physicians deplored the attack on Sir Russell. The B. M. A. maintains that the Spens reports place a moral obligation on the government to increase doctors' pay as the cost of living rises. The government rejects this interpretation. A motion by Dr. H. G. Dowler asked that, as moral obligations had evidently ceased to be obligatory, in future only terms of service in the National Health Service enforceable in law should be accepted. Dr. Solomon Wand, chairman of the B. M. A. council and a principal negotiator in the dispute with the government over pay, said that the government had indicated that the physicians' claim could not be considered on its merits because it would have such inflationary results. This might have seemed a fair assumption had not the members of Parliament a few days later voted themselves a substantial raise. Dr. C. P. Wallace proposed the resolution which led to the attacks on Sir Russell Brain. He moved that it was improper for any individual member of a joint negotiating committee to take independent action without the prior consent of the whole committee. There were cries of "Why?" when Dr. Wand described Dr. Wallace's speech as unfortunate. "Because," he replied, "we are not recriminating on the past; we are looking to the future." A motion to pass to the next business was defeated. Dr. G. Cormack said, "If Dr. Wallace's speech was construed as an attack, that was all to the good. I hope you will pass this as a vote of censure on the man concerned and as a warning to other people who might be of the same mind in the future." The motion was carried.

CORRESPONDENCE

HEALTH IN THE HEAVENS

To the Editor:—Physicians and their scientific colleagues in aviation medicine will be gratified by the intelligent and stimulating review of the current status of space travel, "Health in the Heavens" (*J. A. M. A.* 164:765-769 [June 15] 1957), and by the accompanying editorial in the same issue. To paraphrase the statement of Dr. John F. Fulton in the foreword of "Doctors in the Sky" (Charles C Thomas, Publisher, 1955), the future of the specialty of aviation medicine today appears as boundless as the skies its practitioners are exploring.

A minor error was noted in this excellent article. Dr. John Jeffries accompanied Jean Pierre Blanchard in the first balloon flight across the English Channel on Jan. 7, 1785, not 1795. Earlier, on Nov. 30, 1784, he made an ascension over London. Also, Dr. John P. Stapp recently was given a well-deserved promotion to colonel in the Air Force Medical Corps.

Few physicians will read "Health in the Heavens" without a feeling of pride in the part their profession is contributing to space travel. Likewise, few will doubt that space flight will soon be here—and probably to stay.

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MOUNTAIN CLIMBING

To the Editor:—The Leisure Corner article on mountain climbing in the Aug. 3 issue of The Journal, page 1609, was interesting. If it was intended as an introduction, it is probably adequate for eastern mountains but not for western. For fear real mountaineers are out climbing or are too modest to offer suggestions, may an amateur warn beginners about two items of equipment? Climbing in the Rockies above the timberline consists in rock work, and leather-soled shoes are too slippery. Rubber, composition, or similar materials cling to rock and are much safer. Probably most who go onto snow and ice use crampons (removable iron spikes) rather than cleated or nailed soles. Rope work should not be undertaken by beginners without adequate demonstration and instruction. Many prefer the new nylon rope, as it is lighter, stronger, more elastic, and more pliable when wet than hemp. The best way to start is to join a mountain club for a prolonged outing for a week end or longer. The Alpine Club in New York City will gladly furnish information on the closest club or on one in the vicinity of the proposed climbing area.

Colorado mountaineers are probably chagrined to have Montana and Wyoming credited with scores of peaks between 10,000 and 13,000 ft. and Colorado with only Pike's Peak, which has a car road to the top, when, according to the Encyclopædia Britannica, Colorado has "52 of the 67 highest mountains in U. S., all over 14,000 feet." They would prefer mention of their highest peak, Mount Elbert (14,431 ft.) or the peak probably most climbed on foot, Long's Peak (14,225 ft.) and its noted and notorious East Face, 1,625 vertical feet, which is beyond amateur mountain hiking.

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PAIN AND PLACEBOS

To the Editor:—In a paper entitled "Codeine Phosphate, Propoxyphene Hydrochloride, and Placebo" published in the June 29, 1957, issue of The Journal, page 966, Gruber refers to some work published by my colleagues and me in 1954 (*Am. J. Med.* 16:770 [June]). Gruber implies that we observed some sort of diminishing efficacy with morphine and with placebo over a period of time. He states that we saw "increasing pain" when placebos were given. I have observed no diminution in the effect of the placebo doses with the passage of time in any studies in which I have participated; on the contrary, placebo and morphine each seem to perform better toward the end of the period of postoperative pain than in the beginning of this period. What we did observe was a definite correlation between duration of pain, severity of pain, and efficacy of morphine or placebo.

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Baltimore 5.

HABIT-FORMING DRUGS

To the Editor:—In Foreign Letters in the July 13 issue of The Journal, page 1268, is a short note from France reporting on the effects of a new analgesic 2,2-diphenyl-3-methyl-4-morpholine-butyryl-pyrrolidine (R 875), prepared by P. Janssen of Belgium. The note says, "It is not habit-forming." This product has been studied in the United States, including tests at the Addiction Research Center at Lexington, Ky., with the conclusion that it "has addiction liability at least equivalent to that of morphine (Addendum to the Minutes of the 18th Meeting of the Committee on Drug Addiction and Narcotics of the National Research Council). R 875 was placed provisionally under international narcotics control by the Commission on Narcotic Drugs of the United Nations at its 12th session, and coverage of R 875 under the U. S. Opiates Act has been recommended.

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LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Governmental Hospitals: Liability for Negligence of Employees.—This was an action for damages against a county hospital and its trustees and superintendent for injuries to a pay patient allegedly caused by the negligence of a hospital employee. From a judgment in favor of the hospital the plaintiff appealed to the Supreme Court of Iowa.

Is a county hospital liable for injuries to a patient caused by the negligence of a hospital employee? Under the ancient common law, said the court, the sovereign, generally speaking, could not be sued and this policy is now found in the Iowa statutes. The state is thus immune from suit. Counties, however, are creatures of legislative enactment and may sue and be sued. They are not, as a rule, held liable for torts committed by them, so long as they are acting within the scope of their governmental powers. The difference between a governmental and a proprietary function is that in its governmental function the county is made, by the state, one of its instruments, or the local depository of certain limited or prescribed political powers, to be exercised for the public good on behalf of the state, rather than for itself; while in its proprietary function the theory is that the powers are supposed not to be conferred, chiefly or primarily, from considerations connected with the government of the state at large, but for the private advantage of compact community, which is incorporated as a distinct legal personality or corporate individual.

The defendant hospital was established under Chapter 347 of the Iowa Code. Neither that chapter nor any other statutory provision, said the supreme court, requires a county to provide facilities to care for the sick or infirm, whether indigent or not indigent. Whether or not there shall be a county hospital rests entirely with the county's residents and any assumption of such power is purely voluntary. Under Chapter 347, continued the court, the powers thus assumed are clearly intended, at least primarily, for the private advantage and benefit of the locality and its inhabitants. The majority view is that the operation of a hospital under such circumstances is a governmental function which grants immunity but the tendency is to deny immunity where injury results from negligence of officials or agents exercising purely ministerial powers. The operation of a hospital by a county under Chapter 347 is a proprietary function, at least so far as a pay patient is concerned, said the court, and should be considered in the same light as a private hospital, which, according to well settled law in this state, is liable in tort for injuries to pay patients injured through the negligence of their employees. The motion to dismiss rested on the contention that defendants were merely agents of the county and performing a governmental function, and were, therefore, entitled to the same immunity as the county. Since the court concluded that the county has no immunity, its agents, necessarily, have no immunity either. The judgment of the lower court in favor of the hospital was accordingly reversed and the cause remanded. *Wittmer v. Letts, 80 N. W. (2d) 561 (Iowa, 1957).*

Malpractice: Need for Consent Prior to Plastic Surgery—Minors.—The plaintiff filed a suit for damages for malpractice and assault and battery against the defendant physician for performing a plastic operation on her nose without her consent. From an adverse judgment the plaintiff appealed to the Supreme Court of Ohio.

This appeal concerned only the assault and battery count, the malpractice count having been dismissed by the trial court. The primary issue was whether or not a minor can sue in an assault and battery charge fo an operation to which her parents or guardian did no consent.

The plaintiff, 18 years old but a minor under Ohi law, sought out the defendant physician in respons to an ad in the telephone directory, "Reshape Yo Nose in Plastic Surgery." After an interview and exar ination the defendant physician operated upon t plaintiff's nose. The defendant physician testified th at the time of the operation the plaintiff told him th she was 21 years old and that she called at his offi on several occasions for follow-up treatments. Sub quently, however, she filed suit against the defend claiming that, as a result of the assault and violati of her bodily integrity, permanent changes in the tiss and structure of her nose were made with a detrim tal effect upon her physical appearance, and that was caused to suffer mental shock, humiliation, dep sion, and a general personality and nervous breakdo so that she could not return to her employment.

The term "consent," said the Supreme Court Ohio, as used herein carries with it the assumpt that previous full disclosure of the implications a probable consequences of the proposed conduct which such consent applies has been given in s terms as may be fully comprehended by the per giving the consent. Continuing, the court said that general rule seems to be that, unless there exists emergency, which prevents any delay, or other ceptional circumstances, a surgeon who performs operation upon a minor without the consent of parents or guardian is guilty of a trespass and batt This rule is not based upon the capacity of a min consent, so far as he is personally concerned, wi the field of the law of torts or law of crimes, b based upon the right of parents whose liability support and maintenance of their child may be gr increased by an unfavorable result from the opera al procedures upon the part of a surgeon. The further pointed out, however, that in the present the plaintiff was only entitled to recover nominal ages. It therefore reversed the judgment in favor o plaintiff because more than nominal damages had been awarded by the trial jury. *Lacey v. Laird, 139 N. E. (2) 25 (Ohio, 1956).*

Insanity: Privileged Character of Physician's Testimony.—This was an action against the defendant physician for damages suffered as a result of a detention, following emergency detention proceedings, in a state hospital on the basis of the defendant's allegedly erroneous certificate. From a judgment in the trial court overruling his demurrer, the defendant appealed to the Supreme Judicial Court of Maine.

According to the law in Maine, said the Supreme Judicial Court, municipal officers are authorized to issue immediate restraint and detention orders when such is necessary for the person's comfort or safety or the safety of others providing the complaint is accompanied by physicians' certificate. An examination and certificate of insanity by two reputable physicians is, under the law, a mandatory requirement. Continuing, the court said that, construing the statute as a whole, the certifying physician is a witness in emergency restraint and detention proceedings and the municipal officers are judges. A witness in a judicial proceeding, said the court, is absolutely privileged to publish false and defamatory matter about another as a part of a judicial proceeding in which he is testifying if the defamatory matter is relevant to the subject or inquiry. Therefore, the court concluded, the certificate of the defendant was privileged and his demurrer to the complaint should have been sustained. The judgment of the lower court was accordingly reversed. *Dunbar v. Greenlaw, 128 A. (2d) 218 (Maine, 1956).*

County Hospital: Liability of County for Negligence of Hospital Employee.—This was an action for damages against the county, the county commissioners, and an employee of a hospital established by the county allegedly due to the negligence of the employee. From a judgment for the defendants, the plaintiff appealed to the Supreme Court of Nevada.

The hospital in which the injury occurred was established by the county pursuant to the laws of Nevada and, in a prior suit, it was held that a hospital established pursuant to such laws is not a legal entity and is, therefore, not subject to suit. However, said the Supreme Court, it does not follow from the fact that the hospital is without independent legal entity that there is no public responsibility for torts committed by its employees. The hospital is an institution established, owned, and supported by the county. Having no entity apart from the county, it must follow that the county is the party legally responsible for obligations of the hospital. The county contended that this could not be true in this case because, by statute, the control of the hospital is vested in the trustees elected by the voters of the county and the county commissioners have no management powers. The court said that the fact that the county commissioners are without managerial control does not deprive the county of representation or control or relieve it of liability. The hospital trustees are officers of the county, representative of the county, and responsible to it within their limited sphere of authority to the same extent as are the county commissioners within their general sphere. A county may operate through such agencies as the legislature directs. Accordingly, the judgment in favor of the defendants was reversed and the cause remanded. *Hughey v. Washoe County, 306 P. (2d) 1115 (Nev., 1957).*

Dead Bodies: Who May Authorize Autopsy?—This was an application by the sisters of a decedent for an order authorizing an autopsy on his body for the purpose of determining the cause of death. The decedent's widow filed a motion to dismiss the application, which motion was granted, and the applicants therefore appealed to the Supreme Court of Oklahoma.

The Oklahoma statutes provide: "The right to dissect the dead body of a human being exists . . . whenever any husband or next of kin of a deceased person, being charged by law with the duty of burial, authorized such dissection for the purpose of ascertaining the cause of death." The statute relating to the duty of burying the body of a deceased person specifically provides for those instances in which a married woman dies by placing the duty of burial on the husband or, in the event of his prior death, on the nearest kin. If the deceased is not a married woman, the statute places the duty of burial on the nearest kin, with no mention of a surviving widow. The applicants, therefore, contended that their rights superseded those of the surviving widow since they are the nearest kin.

The Supreme Court said that, as between the wife and other relatives, the great weight of authority is that the care and custody of the body and the right to provide burial rests, in the first instance, with the surviving spouse. The applicants argued that, if the legislature had intended to include the wife, the word "spouse" instead of "husband" would have been used in the law. They argued that the language of the law must be strictly construed, thus depriving a surviving wife of any right or voice in the disposition of the remains of her deceased husband. This, said the Supreme Court, is tantamount to saying that it was intended by the act to make the duty of burial of a deceased person that of a stranger, to the exclusion of a surviving wife, since the law which makes no mention of any surviving spouse, except the "husband," goes so far as to provide that the duty of burial develops upon the tenant, or, if there be no tenant, upon the owner of the premises where death occurs or the body is found. The court held that it was unable to conceive that the legislature, by either reason or necessity, intended any such result. Continuing, it said that courts will not follow the letter of a statute where the literal meaning would lead to absurd consequences which the legislature could not have contemplated. They are bound to presume that such consequences were not intended and to adopt a construction which will promote the ends of justice and avoid the absurdity. The terms "kindred" and "next of kin" as used in the law include a relationship existing by reason of marriage. The applicants, therefore, did not have the primary right of burial over the surviving widow. The judgment of the lower court dismissing the application of the decedent's sisters was accordingly affirmed. *In re Kyle's Autopsy, 309 P. (2d) 1070 (Okla., 1957).*

Charitable Hospitals: Termination of Staff Privileges.—The plaintiff, a physician, filed an action against the defendant, a nonstock hospital corporation, for a declaration that his dismissal from the hospital staff was of no effect, and asking that the trustees be enjoined from depriving him of his rights as a member of the medical staff. From a judgment for the hospital, the plaintiff physician appealed to the court of appeals of Maryland.

By way of background, the evidence showed that the plaintiff and his brother, in addition to practicing medicine, carried on an active real estate business. In 1938, they purchased property which they used as their offices and a small hospital. In 1941, the plaintiff and some associates incorporated Doctors Hospital, Inc., as a nonstock corporation. From 1938 to 1947, the plaintiff's family financed the hospital and made up its board of trustees and the hospital was managed by the plaintiff exclusively. In 1944, Doctors Hospital, Inc., bought property which it intended to convert into a hospital. Because outside capital could not be attracted to a nonprofit corporation, the plaintiff formed Doctors Hospital of Maryland, Inc., a stock corporation. The money from the sale to the plaintiff, his brother, and three other physicians of the stock of this corporation and the proceeds of a mortgage were used to build the present hospital. Operations were begun in the new building in 1947 with the plaintiff personally in control of all operations. When the hospital tried to gain membership in the Maryland Hospital Association, commonly known as Blue Cross, it was learned that this could not be done if the hospital was operated by those who controlled it financially. Doctors Hospital of Maryland, Inc., therefore transferred all its assets to Doctors Hospital, Inc., and was thereafter dissolved. The plaintiff testified that, as part of this transfer, Doctors Hospital, Inc., assumed all obligations of the stock corporation and that he and another physician were given permanent rights to be members of the hospital and its staff. In 1948, a mortgage was executed from Doctors Hospital, Inc., to the plaintiff and his wife on which there is now $100,000 owing. When the hospital sought accreditation from the Baltimore City Medical Society, acting as agent for the American Medical Association, it was told its board of trustees was too small and should be expanded to 15 members, with backgrounds of public service and with no previous business affiliations with the hospital or its staff. The plaintiff, his brother, and two others resigned from the board and new members were elected to take their places. The plaintiff was appointed administrator of the hospital and continued in that position until 1951, when he resigned pursuant to the recommendation of the Baltimore City Medical Society that he do so on the ground that he should not be the executive officer of the hospital while he was on its staff and while it was heavily obligated to him financially. From 1951 on there was friction between the plaintiff and the board of trustees which culminated in the board's refusal to renew the plaintiff's staff privileges.

The plaintiff contended, among other things, that his dismissal was invalid because it was without notice to him and he had no opportunity to be heard. This was based, said the court of appeals, on the contention that he was dismissed for cause, and that in such case the bylaws of the medical staff required notice and hearing. We think this misconceives what occurred, said the court. The plaintiff challenges the validity of the pertinent bylaws of the medical staff adopted by the board in November, 1954, but both before and after November, 1954, the bylaws of the medical staff provided that appointments should be for the calendar year in which the appointment is made. Plaintiff was not dismissed during the year. He was merely notified that his year to year privileges would not be renewed when they expired. In such case no notice, other than that given him, and no hearing, are required. In Levin v. Sinai Hospital of Baltimore City, 186 Md. 174, this court held that a private hospital has the right to exclude any physician from practicing in it and that such exclusion rests with the managing authorities, adding that the directors of a private hospital corporation who have the power to appoint members have the power to remove them from the staff. In that case the court concluded "It is clear, therefore, that since the bylaws of defendant provide that appointments to all divisions of the medical staff shall be made for only one year, appellant has no right to object to his removal from one of the divisions of the staff." We think, concluded the court of appeals, the procedure followed by the board in allowing plaintiff's privileges to expire at the end of the year without renewal was fully in accord with the bylaws of the medical staff and the principles of the Levin case.

The plaintiff also contended that the action of the board was arbitrary, capricious, unwarranted, and unjust. We agree with the chancellor that there was no basis for such a charge, said the court of appeals. The record is replete with evidence that the plaintiff was an obstacle to the control of the hospital by the board, that he was not amenable to discipline, which he often required, and that his presence led to an inharmonious working of the hospital. It is clear that he was either unable, or refused, to comport himself effectively and agreeably within the framework of a charitable hospital conducted on a high plane by a public spirited and sincere board of trustees, as such hospitals generally are conducted and that this attitude created the situation which justified the exercise of an honest discretion by the board leading to his elimination from the scene.

The plaintiff's other contentions were of a more or less technical nature relating to the intent, purpose, and meaning of certain documents adopted by the board, certain documents which passed between the board and the plaintiff, and certain actions taken by the board pursuant thereto. These contentions were also resolved in favor of the hospital. The judgment of the trial court refusing the plaintiff's requests was therefore affirmed. *Glass v. Doctors Hospital, 131 A (2) 254 (Md., 1957).*

Malpractice: Postoperative Care Following Removal of Gall Bladder—Need for Expert Testimony.—This was an action for damages for injuries caused by the alleged malpractice of the defendant physician. The *trial judge set aside a jury verdict in favor of the plaintiff* and entered judgment for the defendant, so the plaintiff appealed to the Supreme Court of Utah.

The defendant removed the plaintiff's gallbladder; there was no negligence in the performance of the operation. Following the operation, however, the plaintiff suffered pulmonary complications allegedly culminating in a collapsed lung, causing pain and suffering and resulting in loss of employment, all of which she attributed to lack of postoperative care. The plaintiff contended generally that the defendant's postoperative care was negligent in that he failed to observe elevation of pulse and temperature and to take remedial measures, that he failed to observe the pain plaintiff suffered, which required sedation, and that he failed to take x-rays to determine the cause of continued chest pains. None of these claims of negligence, said the Supreme Court, was supported by any expert testimony. Whether an attending physician exercised the ordinary care, skill, and knowledge required of doctors in the community which he serves, continued the Supreme Court, must ordinarily be established by the testimony of physicians, except when the facts may be ascertained by the ordinary use of the senses of lay witnesses. Care of a patient after a gallbladder operation, however, depends upon complex scientific knowledge and cannot be ascertained by common lay knowledge.

The plaintiff's principal contention of negligence in postoperative treatment was that she was not "turned and coughed" in accordance with accepted medical standards. The defendant, testifying as an adverse witness, explained that after upper abdominal surgery, when the abdominal muscles are painfully used, the tendency exists to breathe shallowly and if this continues a partial filling of the lung cells and an eventual collapse of the lung may result. Deep breathing and coughing, he said, tend to loosen the accumulated matter and aid in using the full capacity of the lung. The defendant further testified that the medical standards of physicians within the community would require coughing and turning somewhere between every two hours, the routine maximum standard, and every six hours, the minimum standard. The hospital record does not specifically note that the plaintiff was "turned and coughed" as such as often as once every two hours, admitted the Supreme Court, but it does show orders entered and services rendered which necessarily involved movements of the abdomen and chest, such as giving shots, baths, and enemas; "being made comfortable"; inserting rectal tubes; and being catheterized. In fact, the hospital record disclosed 18 of such services in a period of 43 hours. In view of this evidence, continued the court, no finding could reasonably be made that the patient was not turned and coughed at intervals sufficiently frequent to meet even the maximum standard testified to by the defendant. Furthermore, the court pointed out, the defendant gave orders for regular turning and coughing as well as for other treatment and medication. If *such orders were not carried out, the failure to do so* was the responsibility of the hospital personnel and not the defendant, unless the knowledge of such laxity was in some manner brought to his attention and he failed to take steps to remedy the situation. There was no evidence that the defendant had such knowledge. The judgment of the trial court in favor of the defendant physician was accordingly affirmed. *Huggins v. Hicken, 310 P. (2d) 523 (Utah, 1957).*

Malpractice: Trial Court's Instruction as to Effect of Malpractice Judgment on Physician's Reputation:—This was an action for damages for injuries caused by the alleged malpractice of the defendant physicians. There was judgment for defendants and the plaintiff appealed to the Supreme Court of Florida.

The plaintiff contended that the trial court erred in giving the following charge to the jury at the request of the defendants: "In a case against a physician for malpractice, the professional character and reputation of the physician is the most important matter at stake, and hence he should not be condemned by evidence that does not point to his negligence." If the trial court had allowed physicians to testify that a judgment against a physician in a malpractice case would result in great injury to the professional character and reputation of a physician, the admission of such testimony would have required a reversal, said the Supreme Court. The giving of the questioned charge was an even greater error because it was a statement by the trial court to the jury that, in considering their verdict, even should they conclude that the physicians had been negligent and that such negligence proximately contributed to the plaintiff's injuries, they were entitled to weigh against that the effect that their findings and verdict would have upon the professional character and reputation of the defendants. The court held that the giving of such charge was reversible error because it misled the jury. Accordingly, the judgment of the lower court in favor of the defendant physicians was reversed and the cause remanded. *Stauf v. Holden, 94 So. (2d) 361 (Fla., 1957).*

MISCELLANY

The following article was prepared by the valedictorian of the 1957 graduating class of the Olivia, Minn., High School. She received $1,000 for winning first prize in the National Essay Contest which is sponsored by the Association of American Physicians and Surgeons in cooperation with state and county medical societies. The author intends to use her prize money as a premedical student at the University of Minnesota.—ED.

THE ADVANTAGES OF PRIVATE MEDICAL CARE

Sonia Gustavson

"May the love for my art actuate me at all times; may neither avarice, nor miserliness, nor thirst for glory, nor for a great reputation engage my mind; for the enemies of Truth and Philanthropy could easily deceive me and make me forgetful of my lofty aim of doing good to Thy children."[1]

The art of medicine is the Great Art. Its practicers are dedicated; its appreciators are fervent. Surely it is the wish of all thinking, discerning men that members of the medical profession know an atmosphere which will enable them to maintain the high quality of health care that they are giving Americans at the present time. That atmosphere is one which is free from government control or intrusion. American medical men possess this freedom now, and they must continue to possess it. . . .

Since the founding of our nation, life expectancy has increased 39 years. . . . Since 1900, the death rate has increased for 8 diseases, while it has decreased for 21. . . . The increase is due to the fact that, since that year, the population of America has doubled. For every 1,000 babies born in 1957, some 130 live who would have died 50 years ago. The number of people over 65 has quadrupled, and these people account for the marked rise in the death rates for cardiovascular diseases, cancer, and other diseases of old age. The decrease is due to the discovery and perfecting of antibiotics, improved surgical methods, quicker diagnosis and reporting, and to the work done in the field of preventive medicine.

Such splendid achievements could not arise from a profession with low standards of quality. The medical profession requires of its prospective members ten years of advanced education in any of the nation's 82 approved medical schools and under intern and residency programs. Post-graduate courses are offered by schools, societies, hospitals, and other health agencies. Standards are elevated in auxiliary fields of medicine such as laboratory technology and occupational therapy. Financial aid can be secured by deserving medical students. A record number—7,686—entered medical schools in the 1955-56 academic year. What may appear to be, *in some areas,* a shortage of doctors, in actuality is maldistribution. This is being remedied by placement programs which inform communites of doctors desiring locations and inform doctors of communities desiring medical care.

One of the arguments for socialization of medicine frequently used by uninformed people is this: "If the government takes control of medicine, we'll get free medical care." Medical care, like every other necessity, costs money. There is no reason why anyone should hesitate to go into debt to meet medical costs. There are three ways that a man can pay for medical care.

(1) Cash. It is cheaper to pay for home or office calls than to pay taxes to the government on the chance that you might need this kind of service. (2) Savings, securities, loans. Should a man find it necessary to delve into his savings to pay a medical bill, he can do so. If this is not necessary, the savings will remain on hand to meet other types of expenses that may arise. If medical bills were met with federal taxes which are, in this case, compulsory savings, a man could not use these funds for any purpose other than to meet medical expenses. (3) Commercial insurance. In exchange for premiums, you are paid for the costs of more serious illnesses and operations. The uncertainty of a large expenditure is replaced by the certainty of a small one. The advantage of voluntary health insurance over compulsory health insurance is this: The individual reserves the right to select his own doctor and hospital. At the present time, over 60% of the estimated eligible population carries some type of voluntary hospital expense coverage, and approximately 50% is protected against some of the insurable costs of surgery. The voluntary health insurance movement has already surpassed the goals originally charted by the pioneers in the field. It has been on a voluntary basis that all great progress in America has been achieved, and only on that basis can the nation be assured of progress in this field.

A look at the country of England will show us some of the dire results of the socialization of medicine. Under the National Health Program, that country proposed to give the indigent, the poor, the average, and the wealthy the same quality and quantity of medical care, and maintain the quality and quantity that the wealthy were accustomed to under private practice. What happened? In London, wealthier districts have an average of one doctor for 1,261 patients, and poor districts have twice as many patients per doctor. The farming and mining communities suffer even more from lack of medical services. In February of this year, the British Medical Association advised 21,000 English general practitioners seeking a pay raise to quit Britain's socialized system of medicine. The Association recommended . . . a pay-as-you-go plan.

From bitter experience, Britain has learned some of the inevitable results of government medicine. (1) Administrative costs of collecting the taxes and redistributing them as sicknesses occur make the entire program less than worthwhile. (2) The physician patient relationship, always confidential, has been disturbed by this third party intruder, the government. (3) Physicians lose autonomy in diagnosis and treatment that they possess in private practice. (4) Political nfluences enter into the sphere of medicine. (5) Regimentation occurs in conditions of employment for doctors: the number of hours they must work, their income, and their location. (6) Standardizing the treatment of patients slows down research.

Should anyone feel that the indigent and the chronically ill are being neglected under America's present system of medicine, let us investigate these areas. The chronically ill are, of course, excluded from private medical plans because the risk is too great. However, in this country there are private institutions that give considerable amounts of aid to the aged, the sick and the handicapped. Doctors often treat these people at reduced costs. Indigent people . . . are the only people who should receive government aid. If the government stepped in to furnish all of us with medical care, all private resources would dry up and the taxpayer would have to shoulder the entire load. The government already takes one-third of our income, so why make it necessary for it to take more, when private medicine is less expensive and so much more efficient. Let us not forget that it is the intrinsic nature of bureaucracies to get bigger and bigger, more and more wasteful, costlier and costlier and, at the same time, to get further and further out of touch with the individual and his or her particular needs.

In 1939, in a small country town, a woman was stricken with simultaneous influenza and pneumonia. For several days her life hung by a thread, and during these days her family doctor . . . was available to administer stimulants when it seemed the thread could hold no longer. As a last resort, this country doctor sent to a larger city for a new drug that had just appeared on the medical scene which, through his constant studying, he had just learned about. This forerunner of the "miracle" drugs—sulfanilamide—along with the doctor's dedicated care, saved the woman's life.

Picture the same case under socialized medicine. During the day, the doctor would have been too harassed by petty rules and regulations of diagnosis and treatment to give his undivided attention to the saving of this life. After hours, when stimulants were needed immediately, the "night doctor" would have had to have been called. In all likelihood, there would have been no case-continuity nor any of the vitally important feeling for the patient on the part of the "night doctor" working his "shift." When the new drug was wanted, there would have been red tape to cut, and forms and requisitions to fill out. By the time the drug would have arrived, the thread of life would have been completely and finally severed.

When I see this woman now . . . it seems to me that she is a living embodiment of the advantages of private medical care.

References

1. Maimonides: Daily Prayer of a Physician.

THE LEISURE CORNER

CREATING A LIBRARY OF MUSIC RECORDS

Interest in recorded music has shown such tremendous growth in recent years that home record libraries have become an invaluable and meaningful hobby. While trained musicians and seasoned concert-goers know precisely what music they want to own, there exists a large group of persons, including physicians, who have an innate love of music but who hesitate to venture beyond the realm of the semiclassical or popular song hits. By starting a record collection, these individuals can readily increase their understanding and love of the classics through repeated playing of music that has been recorded by outstanding interpreters.

To be "at home with music" by virtue of a library of records implies establishment of an unashamed expression of personal taste. This has not always been true of specially trained and privileged music lovers of the past. Listening to music was often regarded as a duty rather than a pleasure, an earmark of cultural and social superiority. Today, to the purchaser of music records, listening to these records takes on the added pleasure of independence of selection. This type of person is not necessarily concerned whether he is found in the company of other music lovers, nor does he have to go into a technical discussion of musical details. He merely purchases music that he likes or that has been recommended to him by those whose opinion he respects. The fact that he willingly pays for his recorded music is self-explanatory. It is only out of the care that he devotes to creating a musical library, without cluttering up a household with albums that represent false musical pretensions rather than personal selection and taste, that pleasure actually comes.

In creating a library of music records, it is best to commence with music that you know and like. Then, going on from this vantage point, one may purchase records that are related in their musical nature, while proceeding to more highly developed musical compositions. If you are the sort of person who "can't get warmed up" to classical music, you might start your musical adventure with simple melodic waltzes, the more rhythmic types of music, or some of the old favorites. A record library should be so arranged and built that you will be able to derive equal or greater pleasure from purchases made 10 years before. It is highly important to collect records at one's own musical level, keeping an eye and an ear on recordings that are lasting and worthwhile.

An initial group of records can be planned about the Strauss waltzes. These waltzes are frequently admired for their whirling rhythms and lovely melodies, and they seldom fail to captivate the listener. The "Blue Danube" is probably the most popular of all

Strauss waltzes. If one is interested in obtaining a small number of Strauss waltzes, consideration should be given to "De Fledermaus," "The Emperor Waltz," and "Der Zigeunerbaron" ("The Gypsy Baron"). The album called "Johann Strauss: Two Overtures and Two Waltzes" contains some of the best known and best loved of all Strauss music. The "Fledermaus" and "Zigeunerbaron" overtures consist of medleys of tunes from these operettas, each reaching a climax with a waltz.

As you grow in musical taste and discrimination, you will find that Tchaikovsky and Grieg are two composers whose recordings will give considerable pleasure. The waltz from "Serenade for Strings" by Tchaikovsky is a smoothly flowing, highly melodic composition, entirely different from Viennese waltzes, as it is quiet and subdued and the stringed instruments sing forth in a manner that makes it almost irresistible. The other side of this particular record contains an attractive recording by Grieg called "The Last Spring." Some of the more tuneful melodies were never actually composed by a single person; they literally sprang from an entire people, and were handed down vocally from one generation to another as "folk music." In the United States, the best known example stems from southern Negroes, and an excellent recording of this type of music has been made by Columbia.

If, by this time, you feel you are ready for opera, you will find that the two most popular composers are Verdi and Puccini. Both composers wrote melodic arias that attach themselves to one's memory, and you will find yourself before long humming them on your way to your office. The tender passages of "Celeste Aida" will lead you to the robust jovialty of "La donna e mobile." At this point, you should be just about ready for music by a famous French impressionist composer, Claude Debussy. For the most part, Debussy's melodies are comprised of an entirely different texture from those you have been listening to. There is a mysterious, sensitive tone quality about the work of this composer, and it is best to buy his simpler recordings—for example, "Clair de Lune." It would be well to compare the original piano version of "Clair de Lune" with the arrangement for orchestra before choosing a record. The piano impression is more somber.

For an attractive and varied collection of dances, try the album recorded by the Philadelphia Orchestra. "Pops" records will give many hours of delight. The "Russian Sailor's Dance" (from the ballet "The Red Poppy") is a characteristic bent-knee affair that starts off slowly and increases in speed until it winds up in a whirlwind finish. The same 12-measure theme is repeated over and over again, and is varied each time with new tempo and new orchestral coloring.

By now, you should be well on your way to the appreciation and enjoyment of another concept of music. By listening to symphonies in their entirety, one is able eventually to appreciate fully the more advanced interpretation of orchestral repertoire.

A library of records is incomplete without some chamber music. This wonderful form of musical expression has intrigued many physicians, and many, all over the country, have organized groups to play chamber music. An intimacy and completeness surrounds chamber music, and it is a form of music admirably suited to reproduction on the phonograph. Chamber music was originally written for performance in the intimate surroundings of the home. Some people feel cool to this form of music because they probably have listened superficially to some of the more profound compositions without having become familiar with attractive, yet less complicated works. "The Quinte for Clarinet and Strings" by Mozart is filled with delightful melody. The liquid tones of the clarinet blen harmoniously with the two violins, viola, and cello o the string quartet, producing an engaging tonal effect Once you have become converted to the joys of listening to chamber music, you will find yourself investin in many records of string quartets. If you are a mus cian in your own right, much pleasure may be derive from accompanying these recordings with your ow instrument.

Whether you are interested in music arranged f the concert hall or for the opera, you can sample ever type in the quiet of your own home. By the time yo have made friends with the majority of classic recordings, you will probably be enough of a musical enthusiast to approach more complex types of music. library should be built in a planned, musically intell gent fashion. Most persons prefer to acquire a fe records at a time, becoming thoroughly acquainted with them through repeated playing. Some like an entire library selected for them; they have a specified amount of money to spend and desire a balanced group of records.

As is true of any collection, a record library requires a certain amount of care. Records should be handled at the edges if possible, as repeated handling of the surfaces will cause records to sound gritty and swishy. Surfaces should be cleaned with a record brush or cloth. The most common ailment of records is warpage. Warped disks can be made flat again by placing them in direct sunlight for five minutes and then placing them, one by one, on a very flat surface under the even weight of several books.

New records should be examined very carefully. They should have a shiny, clean surface, free from scratches, dents, and blemishes. Cracked records should never be played, since the repeated striking of the cracked surface against the point of the needle can damage both needle and pickup arm. Each record requires a certain amount of breaking in; this usually involves no more than playing it all the way through and then dusting it thoroughly with a record brush. As a collection of records grows, storage becomes important. Records should be stored vertically and kept away from direct heat.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Listeria Meningitis, A Report of Eight Cases. J. W. Dedrick. Am. J. M. Sc. 233:617-621 (June) 1957 [Philadelphia].

Eight patients with listeria meningitis were admitted to the communicable disease unit of the Los Angeles County Hospital within 4 years; 4 died and 4 completely recovered. All received penicillin and sulfonamides, and all but one received chloramphenicol as initial therapy. Sensitivity tests showed organisms from survivors to be responsive in vitro to a larger number of antibiotics than those from patients who died. Afebrility was finally obtained in 2 of the 4 surviving patients after substitution of oxytetracycline for virus-resistant chloramphenicol. The striking morphologic resemblance of listeria monocytogenes to diptheroids and the colonial similiarity on blood agar to beta streptococci have caused many cultures to be either discarded or incorrectly identified, leading many to believe that human listerosis is far less common than it really is. The differentiation of listeria monocytogenes from diptheroids and beta streptococci may be accomplished on the basis of motility, virulence in mice, keratoconjunctivitis in rabbits (diagnostically specific for listeria monocytogenes), and serology. In vitro testing of the variable sensitivities to antibiotics is important in the choice of individual therapy.

Serum Transaminase in Pulmonary Disease and Multiple Infarctions. J. R. Walsh, F. L. Humoller and F. G. Gillick. Ann. Int. Med. 46:1105-1112 (June) 1957 [Lancaster, Pa.].

Three hundred eighteen determinations of serum transaminase activity were carried out in 112 hospitalized patients, 50 of whom showed evidence of myocardial infarction. These determinations were made with the aid of Karmen's spectrophotometric method in an attempt to determine the specificity of the serum transaminase test in patients with myocardial infarction. While increased serum transaminase levels were found most commonly in patients with acute myocardial infarction, elevated levels also were found often enough in patients with necrosis and infarction of other organs to suggest caution in interpretation. The highest values of 500 units or more of serum transaminase activity were found in patients with multiple pulmonary and renal infarcts. The typical curve for the time course of serum transaminase levels of myocardial infarction also was observed in patients with multiple pulmonary and renal infarcts. In patients with pulmonary infarction, increased serum transaminase levels ranging from 40 to 100 units were observed, particularly after the 4th day. In certain cases the increased serum transaminase level became evident between the 6th hour and 5th day, exactly as in patients with myocardial infarction. These observations definitely reduce the usefulness of the test for the differentiation of myocardial from pulmonary infarction. The occurrence of serum transaminase levels of more than 100 units, however, was rare in patients with pulmonary disease. There were only 2 such cases among the 112 patients. A value of 186 units was recorded in 1 patient with fulminating pneumonia and a value of 104 units in a patient with pulmonary infarction. Increased values of more than 40 units of serum transaminase activity were observed in patients with pulmonary infarction, multiple infarctions, pneumonia, carcinoma of the liver, pancreatitis, trauma, and cirrhosis of the liver and in 1 patient with uremia.

Clinical Manifestations of Hypopotassemia. B. Surawicz, H. A. Braun, W. B. Crum and others. Am. J. M. Sc. 233:603-615 (June) 1957 [Philadelphia].

Patients with abnormally low concentrations of plasma potassium may have numerous functional and anatomic derangements. However, the majority of the signs and symptoms related to hypopotassemia are nonspecific, being found in many severely ill persons without low potassium levels. Multiple disturbances of homeostasis complicate potassium deficiency, obscuring and modifying its effects. The incidence of hypopotassemia among females was significantly higher than in males. The mortality rate of hypopotassemia patients was much higher than the over-all hospital rate. Hypochloremic alkalosis with hypocalcemia commonly accompanied patassium deficit. Anorexia, nausea, and vomiting are part of the clinical symp-

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The place of publication of the periodicals appears in brackets preceding each abstract.

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tomatology, which included inactivity of the deep tendon reflexes as the only factor correlated with potassium deficit. A rough correlation exists between impairment of intestinal peristalsis and degree of potassium deficit. The most significant changes accompanying rapid infusion of potassium were increased peristalitic activity and improved mental status. The nonspecific nature of clinical manifestations of hypopotassemia emphasizes the importance of the electrocardiogram, the electromyogram, and other laboratory aids in the diagnosis of this disorder.

Molecular Diseases of Hemoglobin: I. Introduction and Incidence. T. P. Haynie, H. L. Dobson and R. A. Hettig. Ann. Int. Med. 46:1031-1038 (June) 1957 [Lancaster, Pa.].

The incidence of abnormal hemoglobins was studied by the authors with the aid of paper electrophoresis in 350 white and 400 Negro patients at the Jefferson Davis Hospital, in Houston, Texas. The results obtained were compared with those obtained by Smith and Conley in 500 white and 500 Negro patients at the Johns Hopkins Hospital and by Schneider in 60 white and 505 Negro blood bank donors at the John Sealy Hospital in Galveston. The authors' study and that of Smith and Conley, representing the incidence in general hospital populations, agreed quite well. The study by Schneider differed in that persons with known hemoglobin disease did not appear in this series, which was based on blood bank donors, since persons with overt hemolytic disease or anemia were not permitted to donate blood. Persons with asymptomatic trait abnormalities, however, were included, and Schneider's statistics thus provided a good indication of the incidence of trait abnormalities in a population considered to be normal.

Abnormal hemoglobins were not found in any of the 910 white persons screened by electrophoresis in the 3 studies. In the 1,405 Negroes, there was an incidence of 11.5% of abnormal hemoglobins as detected by electrophoresis. S hemoglobin was present in 9.4% and C in 2.2% of the Negroes. Only 1 case of homozygous C disease was detected in the 3 series. The incidence of the sickle trait varied from 7.2% to 11.3% in the 3 series, with a mean of 8.4%, thereby providing essential agreement of trait incidence between electrophoretic techniques and those based on the findings of in vitro sickling reported by other workers. The figures from all 3 series combined agreed quite well with the notion that about 10% of the Negro population has sickle cells in the peripheral blood and that 10% of this group has sickle cell anemia.

Filter-paper electrophoresis is the best single method for the detection of molecular diseases of hemoglobin. This method will separate all but combinations of A, F, and G hemoglobins and combinations of S and D hemoglobins. The most common abnormal hemoglobin is S, while C is observed less frequently. The diseases observed were trait, homozygous disease, and double heterozygous disease. The incidence of molecular disease of hemoglobin in Negroes is about 11.5%.

SURGERY

Cerebral Damage After Metatraumatic Ligation of Carotid Artery. U. Venzlaff and E. Trostdorf. Beitr. klin. Chir. 194:328-349 (No. 3) 1957 (In German [Munich, Germany].

Ligation of the carotid artery was performed after injuries involving the carotid artery in 16 patients. In 15 patients these injuries were sustained during World War I and in 1 patient in a traffic accident. Ligation of the common carotid artery was performed in 10 patients; ligation of the common carotid and internal carotid arteries in 3; and ligation of the internal carotid artery, of the internal and external carotid arteries, and of the external carotid artery in 1 each. Ligation was done on the left side in 11 patients and on the right side in 5. Complete contralateral pyramida hemiplegia resulted immediately or within 2 hours t 5 days in 11 of the 16 patients; it was permanent in 7 and one of the 4 patients who gradually improve made a complete recovery. Two additional patien had symptoms of latent hemiplegia, such as abnorma reflexes and mild dysdiadochokinesia. Only 3 patien did not have any pyramidal signs. All the patients wit pyramidal hemiplegia also showed signs of involvement of the corticobulbar tracks. Of 8 patients wit pyramidal hemiplegia resulting from ligation of th carotid artery on the left side, 7 had aphasic disturbances of speech. Motor aphasia was predominant. Th most severe and refractory disturbances of speec were observed in 3 patients over 25 years of age wit combined motor-sensory aphasia. Gradual improvement resulted in the other patients. Weakness in wri ing and reading occurred in 3 patients. Blindness o the side of the focus resulted from atrophy of the opt nerve in 1 patient. The atrophy may have been cause by spasm or embolism of the central retinal arter blocking the circulation.

There was a constant relationship between the e tent of the psychic disturbances and the severity of th neurological deficiencies. Psychic disturbances we more severe in older patients and in those with ligation at the left side. Of the 5 patients with ligation a the right side, only the oldest, a 39-year-old man, ha affective disturbances of regulation, slowing down and a tendency to depression. Of 11 patients with ligation on the left side, 9 had severe psychic disturbances, including mental deterioration, characte changes, and functional weakness of the brain. Only the 2 youngest patients, who had been operated on at the age of 20 years, were free from psychic disturbances.

Late complications were observed after free intervals of from 1 to 9 years. Headache, vertigo, tendency to collapse, and sweating were observed in 4 patients ho first did not have any encephalopathic complaints ter the operation. These complaints became gradu-lly worse, and functional weakness of the brain eveloped in 2 patients whose memory and concen-ation weakened. Symptomatic epilepsy occurred as late complication in 4 patients, and a decrease in bido and potency in 1 patient. Nine years after the gation 1 patient had sudden attacks of feeling of nnihilation, vertigo, blackout, and temporary worsen-ng of his residual paresis in the right arm. These ob-ervations show that ligation of the carotid artery is ndured only in very rare cases without causing a leficiency in the blood circulation of the brain which nay, occasionally, develop only years after the opera-ion.

)irect Vision Repair of Intracardiac Defects Utilizing Rotating Disc Reservoir-Oxygenator. F. S. Cross and . B. Kay. Surg. Gynec. & Obst. 104:711-716 (June) 957 [Chicago].

Many pump-oxygenator systems have been devised or intracardiac operations for the repair of congenital ardiac anomalies. The basic mechanism of the rotat-ng disk reservoir oxygenator, used in the 45 patients perated on for intracardiac defects during the first 10 nonths of 1956, is a series of 59 silicone-coated stain-ess steel disks supported horizontally in a pyrex ylinder coated with silicone resin. Blood introduced t one end of the cylinder is removed from the bottom f the opposite end. The rotation of the disks prevents he channeling of blood along the bottom of the cylin-ler. With the oxygenator primed with 1,400 cc. of vhole blood and the disks rotating at a rate of 120 pm, there is an exposure area of 108 sq. m. per min-ite. A mixture of oxygen and 1.5% carbon dioxide, varmed in a sand bath heated by an electric mantle, s supplied. Continuous monitoring of central venous ressure and maintaining it at the preperfusion level onstituted the greatest aid in achieving a balanced erfusion during the periods of cardiac bypass. Any nmeasured extrinsic blood loss or reflex vasodilatation esulting in decreased venous return to the cavae and concomitant decrease in the venous return to the xygenator automatically is compensated for with lood from the reservoir-oxygenator and is measured s a fall in the oxygenator blood level. In this way the entral venous pressure acts as a fairly accurate index f the circulating blood volume in the patient. After ardiotomy closure the caval tapes are released and the ump rate decreased slowly, with a satisfactory central enous pressure and systemic arterial pressure main-ained until the heart takes over satisfactorily. The atient is weighed immediately postoperatively, and he weight is adjusted by means of blood transfusions r blood removal if necessary.

The greatest experience to date with the intracar-liac repair techniques has been with ventricular septal lefects, atrial septal defects, and pulmonic stenosis, alone or in various combinations. Ivalon sponge prostheses have been used in the repair of the larger ventricular septal defects, whereas the smaller defects have been closed by interrupted sutures of 000 silk. Atrial septal defects have been closed by direct suture by use of either interrupted sutures of 000 silk or a continuous suture reinforced with interrupted sutures. Thirty-three of the 45 patients survived the operation. No deaths could be ascribed to the use of the pump oxygenator. Pulmonary complications were the most frequent postoperative problem. There can be little doubt that the future of cardiac surgery lies in the further development of safe direct-vision techniques. The advantages of the open techniques are (1) easy visualization of all valves, septums, and chambers; (2) complete correction of existing defects when possible; and (3) identification and repair of associated defects previously undiagnosed. Where there has been an opportunity to compare open techniques with previously tried closed techniques, the former have proved more satisfactory from all standpoints. Emphasis is placed on the use of extensive physiological studies before, during, and after the period of cardiac bypass, for it has been through these studies that the techniques of surgery under direct vision have been improved. A satisfactory pump-oxygenator is only part of the formula of success.

Surgical Repair of Ruptured Interventricular Septum Following Acute Myocardial Infarction. D. A. Cooley, B. A. Belmonte, L. B. Zeis and S. Schnue. Surgery 41:930-936 (June) 1957 [St. Louis].

Rupture of the interventricular septum resulting from or secondary to myocardial infarction is widely recognized as a fatal complication of acute coronary occlusion. Septal rupture occurs approximately 7 days after acute infarction, with death resulting from rapidly progressive cardiac decompensation. A loud precordial systolic murmur appearing after a coronary occlusion is of diagnostic significance, as emphasis is placed on early diagnosis, vigorous treatment of cardiac decompensation, and prompt preparation for operation within the time interval (several hours or days) between septal rupture and ultimate cardiac failure. Diagnosis may or may not be confirmed by catheterization. Direct surgical correction of this defect and other serious complications of acute myocardial infarction, such as ventricular rupture with pericardial tamponade, ventricular aneurysm, and ruptured papillary muscle, is now feasible with the use of temporary extracorporeal circulation.

Pericardial Fat Necrosis: Report of 3 Cases. R. C. Jackson, O. T. Clagett and J. R. McDonald. J. Thoracic Surg. 33:723-729 (June) 1957 [St. Louis].

The authors report on 3 patients, 2 men aged 52 and 63 years, respectively, and 1 47-year-old woman with pericardial fat necrosis. Each patient was quite ceded by conization biopsies negative for evidence of cancer. There were no deaths to date that could be attributed to carcinoma in situ of the uterine cervix.

The diagnosis of cancer in situ is possible only if the 360-degree cold-knife conization biopsy technique is carried out in every patient with suspected cervical malignancy. Total hysterectomy and resection of a generous vaginal cuff with preservation of normal-appearing ovaries in all women aged less than 45 years is the treatment of choice in those with a conization biopsy positive for cancer in situ of the uterine cervix. Any other form of therapy is considered inadequate, as evidenced by the high incidence of residual tumors noted in this series. The presence of glandular involvement in the conization biopsies did not appear to affect adversely the prognosis over a 5-year period nor to increase materially the incidence of residual tumor in the postoperative specimen. Extensive glandular involvement by noninvasive cancer in the conization biopsy is considered to be a more advanced stage of the disease from the standpoint of microscopic pathology but it does not constitute invasion of the underlying stroma nor adversely affect long-range prognosis in any patient. The incidence of residual tumor in this series is thought to be due to incomplete removal of the tumor by conization biopsy, to its possible multicentric origin, or to a combination of both, and not to involvement of the endocervical glands.

Carcinoma of the Vulva. J. H. Isaacs and N. H. Topek. Am. J. Obst. & Gynec. 73:1277-1285 (June) 1957 [St. Louis].

Of 41 women with carcinoma of the vulva seen in the course of 17 years, 18 (43.9%) were seen during the last 5 years. These data suggest that with the over-all increase in life expectancy there has been a concomitant rise in the incidence of vulvar malignancy. Six of 16 patients who were followed up for 5 years or more were living and well, a 5-year survival rate of 37.5%. This result was due to inadequate therapy employed in some of the earlier cases. Of 11 patients adequately treated either by radical valvulectomy and irradiation or by radical valvulectomy and lymphadenectomy, 6 survived for 5 years, a survival rate of 54.5%, which approaches an acceptable percentage.

A critical survey of the symptomatology of the patients with carcinoma of the vulva indicates that it is a disease of older women and of slow development, and that chronic irritative lesions of the vulva are predisposing factors. Such precancerous lesions must therefore be excised. Patients with coexistent carcinoma of the vulva and veneral granuloma generally have a better prognosis, since the accompanying inflammatory adenitis blocks the lymphatic pathways, preventing metastases. When vulvectomy is done for precancerous lesions, the specimen must be cut for multiple section study, as previously undetected malignancy may be found. If discovered, then bilateral groin dissection is essential. Radical surgery is the only means of increasing the 5-year cure rate. T extent of the surgery will depend on the condition the patient and the extent of the disease. A 1-st procedure including radical node dissection and v vectomy as advocated by other workers is ideal the reported 12% operative mortality suggests 2-st or even 3-stage operations may be best in poor- patients. The exenteration operation advocated for t treatment of patients with far-advanced disease i volving the intestines and/or the bladder resulted an alarmingly high operative mortality of 45%, wh makes this method not yet practical.

OPHTHALMOLOGY

The Treatment of Retinoblastoma by Radiation a Triethylene Melamine. A. B. Reese, G. A. Hyman, G. Merriam Jr. and A. W. Forrest. Am. J. Ophth. 43:86 871 (June) 1957 [Chicago].

The treatment of retinoblastoma by combination x-radiation and triethylene melamine is more effecti than treatment by x-radiation alone. Results of t combined treatment are more favorable from a stan point both of vision restored and of minimal ti lapse from commencement of treatment. TEM e ployed intramuscularly, either by itself or in com bination with x-radiation, is more effective than wh employed orally, due to emesis, irregularity of a sorption, and resultant interference with dosage. T lower dosage of x-radiation now required in the com bined treatment has led to no vitreous hemorrhag such as are encountered with the dosage required i deformities. Multicentricity of foci did not affect t cure rate in either group. A failure of the combin group in lesions of 5 disk diameters or less was ra while in lesions greater than 8 disk diameters the were failures by both methods. Use of TEM intr arterially is indicated as being most effective. T method is used to increase many fold the amount drug reaching the tumor when the tumor is large a enucleation not possible, when there are tumor ce present at the cut end of the optic nerve at enucleatio and in orbital recurrence following prior enucleatio

Use and Misuse of Acetazoleamide (Diamox) in t Treatment of Glaucoma. P. A. Chandler. A. M. Arch. Ophth. 57:639-643 (May) 1957 [Chicago].

The use of acetazolamide (Diamox) has been wid spread in the treatment of glaucoma, since this ca bonic anhydrase inhibiting drug has a pressure-lowe ing effect. But this is due solely to a lessening of t rate of aqueous humor production. The obstruction to outflow of aqueous humor is not influenced by t drug. Treatment of glaucoma by the use of Diam must be, therefore, regarded as a palliative one. It often of great value in preventing damage to visio while other measures are employed to relieve t fundamental difficulty: obstruction to outflow aqueous humor. The greatest field of usefulness of the drug is in the treatment of secondary glaucoma, which is, by definition, a rise in ocular tension secondary to some other eye disease. If the fundamental disease can be cured, secondary glaucoma is likewise cured. Diamox appeared to be of great value as a substitute for palliative operations. There is no contraindication to its use, except for the unpleasant side-effects experienced by some patients.

The situation is quite different in patients with angle-closure glaucoma, since the obstruction of outflow is due to closure of the angle. In the early stages a simple surgical procedure effects a complete cure of the disease, whereas it is well recognized that in the late stages all treatment may fail. If Diamox, therefore, is employed along with miotics in the treatment of angle-closure glaucoma, the level of tension is no longer a guide as to the extent of closure of the angle. The drug should never be used as a continuing treatment in any form of angle-closure glaucoma, but, once operation is decided on, Diamox serves a very useful purpose as an immediate preoperative treatment in all types and stages of angle-closure glaucoma. No contraindication to the use of the drug is given when there is the question of controlling the residual increased tension.

Report of a New Carbonic Anhydrase Inhibitor (Squibb-MC-9367). M. H. Balistocky and B. C. Gettes. Am. J. Ophth. 43:730-735 (May) 1957 [Chicago].

A single dose of 500 mg. of a propanyl derivative of acetazolamide (Diamox), known as Squibb N (5-sulfamoyl-1,3,4-thiadiazole-2-YL) propionamide, or MC-9367, was given orally to 30 patients with 43 glaucomatous eyes. Of the 43 eyes the glaucoma was of narrow-angle type in 13, wide-angle type in 19, aphakic in 5, secondary to uveitis in 2, secondary to vascular occlusion in 1, secondary to a dislocated lens in 2, and secondary to intumescent cataract in 1. Twenty-three patients with 40 nonglaucomatous eyes were used as controls and were likewise given a single dose of 500 mg. of MC-9367 orally after their intraocular pressures had been recorded. Decreases of 6 mm. Hg or more in the intraocular pressure were considered significant and were observed in 18 eyes of the patients in the control group. None of these patients was receiving miotic therapy.

MC-9367, when combined with the usual miotic drugs, was effective in reducing the intraocular pressure in all 13 eyes with narrow-angle glaucoma, in 16 of the 19 with wide-angle glaucoma, in 3 of 5 with aphakic glaucoma, in the 2 with glaucoma secondary to uveitis, in the 2 with glaucoma due to bilateral dislocated lens, and in the eye with glaucoma secondary to an intumescent cataract. MC-9367 was ineffective in the eye with glaucoma due to vascular occlusion. In no case in which Diamox had failed was MC-9367 effective. The greatest period of effectivity of MC-9367 was from 2 to 4 hours after its administration. None of the patients reported any paresthesias, and no toxic effects were noted after a single dose of the drug. MC-9367 given in a single dose orally is an effective agent in lowering the intraocular pressure in man.

THERAPEUTICS

Acute Immediate Reactions to Penicillin. G. W. Lewis. Brit. M. J. 1:1153-1157 (May 18) 1957 [London].

Acute immediate reaction after injections of penicillins occurred in 12 patients from general practice. They were divided in 3 groups. The first group consisted of 2 physicians; 1 of them had a painful boil inside his nostril and was given an injection of 1 million units of crystalline penicillin followed immediately by one of 900,000 units of procaine penicillin in aqueous suspension. Nausea, swelling of the upper lip, and a greatly accelerated and irregular pulse rate developed 15 minutes after the injection and were followed by loss of consciousness for 2 hours. One week later large urticarial lesions occurred over the entire body. A similar reaction occurred in the other physician after an injection of procaine penicillin in aqueous suspension which he administered to himself. Both men had received many previous injections of penicillin, and it is suggested that the untoward reaction was due to intramuscular injection of penicillin in sensitized persons. Group 2 consisted of 6 patients, 3 men and 3 women between the ages of 34 and 60 years. Two of these patients received crystalline penicillin and 3, procaine penicillin, and the reactions in these were produced by accidental intravascular injection or back-seepage in slightly sensitized persons. The 6th patient had been given an injection of penethamate hydriodide, and his reaction may have been due to the known toxicity of this compound, since subsequent injections of procaine penicillin were given without untoward reactions. The third group consisted of 4 patients, 2 men and 2 women between the ages of 21 and 56, in whom the reactions were caused by accidental rapid intravascular injection of procaine penicillin suspensions.

A scheme for minimizing the incidence and severity of these reactions is outlined. It includes reduction of incidence of sensitization, by confining oral and parenteral administration of penicillin to cases with clear indications and by abandoning topical application of penicillin; careful history-taking; and dermal and intradermal tests with solutions of crystalline penicillin in allergic patients with previous mild reactions. The interval between individual injections of a course of penicillin should never exceed 10 days, the time required for sensitization to become established. Careful technique of injection should be used. All patients who once had an acute immediate reaction from the administration of penicillin should be given a card indicating this fact, and this card should be carried in the wallet or handbag. Suggestions are made for treatment.

BOOK REVIEWS

Human Cancer: A Manual for Students and Physicians. By Maurice M. Black, M.D., Associate Professor of Pathology and Clinical Pathology, New York Medical College, New York, and Francis D. Speer, M.D., F.C.A.P., Professor and Director, Department of Pathology and Clinical Pathology, New York Medical College. Cloth. $7.50. Pp. 273, with 34 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1957.

In this compact volume the authors have accomplished a synoptic presentation of human cancer in terms of its biological behavior correlated with clinical manifestations and indications for treatment. Although they emphasize the importance of the balance between host and tumor as the chief factor in prognosis, they do not neglect the importance of diagnosis and treatment at an early stage when possible. The book fulfills its objective well, particularly in the first five chapters which deal with cancer detection, human carcinogenesis, biological behavior of cancer, biochemistry of cancer, and chemical and radiation therapy. The remainder of the book deals briefly with cancer in anatomic sites and systems and with remarks as to incidence, signs and symptoms, structure, metastases, prognosis, and treatment. In general, these brief and up-to-date reviews of various types of cancer provide valuable information for medical students and physicians with a general interest in the treatment of cancer.

The one defect in the book is a tendency toward dogmatic statements. Examples of this are found in such recommendations as estrogenic therapy for palliation of mammary carcinoma in patients 60 years of age and older, while the generally accepted attitude is the use of antiandrogenic treatment based on physiological age or at five years or more after the menopause. The recommended intramuscular dose of testosterone propionate for palliation of mammary cancer is somewhat greater than that commonly used at present; 50 mg. three times weekly produces the same limited benefits in premenopausal women as does twice this amount. The authors state that only 32% of thyroid carcinomas are of the papillary variety but, in most series, over 50% of thyroid cancers are papillary adenocarcinomas. Hemithyroidectomy is recommended as the treatment for thyroid cancer; there is no mention of the possible advantages of total thyroidectomy. The experience of the authors in chemotherapy of mammary cancer seems to have been more favorable than that of most of the investigators, particularly with respect to triethylene thio phosphoramide, a drug that has been of little value in the experience of most qualified investigators. The volume is well supplied with tables, graphs, and occasional photomicrographs of excellent quality. There is a comprehensive index. An extensive bibliography appears at the end of each chapter.

A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology. By Torald Sollmann, M.D. Eighth edition. Cloth. $20. Pp. 1535. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1957.

This new edition of a textbook, first published at the turn of the century, is written by one of the founders of American pharmacology. As one indication of the speed with which pharmacology i moving, it might be pointed out that probably ove 50% of the drugs in popular use today were no known when the last edition of this book was published in 1948. The aim of this textbook "is t furnish a guide through the complexities of modern pharmacology—the actions and uses of drugs, in association with a critical summary of the chie features of the many contributions made in thi ever expanding field. It is presumably prepare primarily for use by medical students. The book well indexed and, as is to be expected with a boo of this type, it is indexed in terms of drugs rathe than of diseases for which the drugs are used. A in the earlier editions, only the more recent refe ences (in this case those since 1940) are listed. Despite this limitation, about 11,000 references a included in the appendix. The pharmacology drugs and other chemicals of possible medical an biological importance is discussed in the classic manner: origin, chemical and physical propertie absorption, fate, actions, uses, dosages, and th signs, symptoms and treatment of overdosage. Details of experimental findings are given to an exte not found in the usual textbook in pharmacolog thus providing a valuable source of information the researcher in this field. Introductory chapte deal with certain aspects of pharmacy important the prescriber such as prescription writing, fact influencing the intensity of drug action, and cert general fundamental concepts of the mechanism drug action.

As is inevitable in a book of this encyclope nature and in this field, there are some errors a controversial statements. One of these, for instan is the statement to the effect that during digit therapy in mammals the size of the heart is diminished in diastole but only in systole. M writers on this subject now are of the opinion t in human beings, after full therapeutic doses h been given, a decrease in diastolic size results b in normal subjects and in patients with congestive heart failure. Again, in the opening paragraph on digitalis, it would appear that singling out the actions of digitalis effective in overcoming decompensation in valvular cardiac lesions lays undue emphasis on digitalis usage in such conditions. It would have been preferable to cite auricular fibrillation with failure as the outstanding example, as is done later. It is further stated that pigeons tolerate 25 times as much digitalis as do cats on intravenous injection. Reference to the original work cited, however, shows that pigeons are only 25% more tolerant than cats. For the average medical student and practitioner, the ready usefulness of the book would have been improved if more clear-cut comparisons (preferably in tabular form) of drugs having a similar general type of action or use, such as the various members of the digitalis group, the anticoagulants, the antihistaminics, and the opiates had been included. Like its predecessors, this edition will be a standard reference book for students, practitioners, and research workers, not only for the purpose of keeping abreast with pharmacology generally but for the specific purpose of finding what studies have been done, and by whom, on a particular drug or chemical. It is a vast reservoir of pharmacological information.

Practical Psychiatry for Industrial Physicians. By W. Donald Ross, M.D., B.Sc., F.R.C.P., Associate Professor of Psychiatry, University of Cincinnati, Cincinnati. Foreword by Robert A. Kehoe, B.S., M.D., Professor of Industrial Medicine and Director Department of Preventive Medicine and Industrial Health, Institute of Industrial Health and Kettering Laboratory, University of Cincinnati. Preface by Maurice Levine, A.M., M.D., Professor of Psychiatry and Director of Department of Psychiatry, University of Cincinnati. Cloth. $7.50. Pp. 401, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

Because of the numbers of people contacted and the amount of time spent in employment, industrial medicine possesses an ideal structure for the application of mental health procedures. An average work week is about 25% of the working person's waking time. In view of the fact that these hours are intimately related to the economic security of the country and have special dynamic meanings for the worker himself, it is to be wondered that recognition and growth of the psychiatric side of industrial medicine was so late. The present volume is one of very few to present the multifaceted psychiatric aspects of medicine in the industrial world. The author cites much material from his own experience and from that of physicians in industry at large. He discusses motivation, fatigue and boredom, morale and absenteeism, accident proneness, job stress, and various other industrial medical problems. The first two sections consist of a short orientation in basic psychiatry. Interviewing and history-taking techniques are reviewed. The author cites the 1952 American Psychiatric Association "Diagnostic and Statistical Manual" for classification, and he leans heavily on Levine's "three layer approach" for psychotherapy. Part 3 deals with the place of medicine in industry, allied social sciences, and communications and referrals.

In the 18 chapters devoted to specific problems, many important and provocative concepts are presented. These should be of interest to the psychiatrist attempting to understand his patient and to the industrial physician seeking psychiatric orientation. In-plant and out-of-plant problems may be diagnostically separable, but they are often best understood as cause and effect (in either direction). Psychodynamics and the physician's contribution are discussed in relation to each type of problem. Throughout the book the author makes many interesting generalizations. For example, he compares the value of the neurotic in industry to the canary in mining; he is unusually sensitive to the stresses that affect everyone. Thus, with perception and insight, the industrial physician can forestall more widespread trouble or discontent. Again, the author emphasizes the need for the physician to be a medical advisor to management and to avoid personnel policy matters if he is to be of real value. The physician must be free to learn of the informal organization of his industry via rapport with lower echelons, and he must have access to the top in order to facilitate his communications which require executive action. This volume should be of value to industrial physicians. It should also provide good orientation for psychiatrists who accept referrals from these physicians.

Practical Refraction. By Bernard C. Gettes, M.D., Assistant Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Cloth. $6.50. Pp. 170, with 58 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1957.

This book represents an attempt to produce a short manual on the technique of refraction without going into the details of physiological optics on which refraction is based. For that reason the neophyte will not find that this book is adequate for all his needs but should find in it many useful suggestions. While most of the book is clearly written and should be intelligible to the beginning student in refraction, certain parts, such as the description of astigmatism, are likely to be confusing. Most writers on refraction are extremely dogmatic as to the correctness of their own methods and the error implicit in all other methods, but this author is to be congratulated on his broad viewpoint and the recognition that all techniques have their advantages but that experience, skill, and accuracy are the most essential factors. The orthodox method of presentation has not been fol-

PREMATURE ERUPTION OF TEETH

To the Editor:—*A dentist states that a 6½-year-old boy has "teeth that are coming in five years ahead of time" and that these teeth "have so many cavities that he will have no teeth left by the time he reaches adulthood." His deciduous teeth also showed many cavities, and many of them had to be extracted. The dentist feels that this indicates some systemic disease. Complete physical examination reveals a boy who is tall for his age and in excellent physical and mental health. There are no congenital abnormalities apparent nor any evidence of disease. Serum calcium, phosphorus, and alkaline phosphatase levels are within normal limits for his age. A careful nutritional and hygienic history indicates that the child eats well of all foods, including those containing calcium and proteins, meat as well as milk, and brushes his teeth frequently. He does not overindulge in bottled sodas, orange juice, or milk to the extent of spoiling his appetite for meat. His ancestry is mixed Irish, German, and English, so that, for the present, his Irish ancestors are being blamed for his dental difficulties. Please suggest further investigation, possible diagnosis, therapy, and prevention. If each decalcified area is filled as early as possible, is there any reason why the child should lose his permanent teeth any earlier than anyone else?* *Shepard G. Aronson, M.D., New York*

This inquiry has been referred to three consultants, whose respective replies follow.—Ed.

Answer.—Premature eruption of teeth may occur in hypergonadism, which may be secondary to hyperpituitary function or, more rarely, hyperthyroidism. The degree of premature tooth eruption cannot be evaluated, since this information is not available. Blood chemistry findings would not be altered in rampant caries. The diet should be well balanced and low in fermentable carbohydrates.

The patient's dentist should seek the services of a caries control laboratory. The relative susceptibility of this patient to caries and the effectiveness of the caries control procedures can be evaluated by means of counts of lactobacilli. With frequent expert dental care and complete patient cooperation, there is no reason why the permanent teeth should be lost prematurely. Dental caries are related primarily to local environment factors that can be controlled.

Answer.—To begin with, it must be borne in mind that there is extensive variation in the eruption pattern of both deciduous and permanent teeth and that the statement that the teeth "are coming in five years ahead of time" in itself is almost impossible to interpret. The lack of any evidence of a systemic disease would strongly suggest that this child's problem is entirely local. There is every reason to believe that if the extensive caries are managed on the basis of individual cavities the child should be able to maintain many of his teeth well into adult life. The question as to whe er or not each decalcified area should be filled as ea as possible to avoid the loss of more permanent te is the essence of the problem. Certainly this procedu should be followed, and the results should be acce able. It is recommended that good local dental ca be given the child in order to prevent the spread o the carious lesions and to maintain the teeth wh are now forming the dentition.

Answer.—Tooth eruption normally occurs over wide age range around the accepted average. Hype thyroidism and hyperpituitary disease are associat with accelerated tooth eruption. Caries resulting fro systemic disease most often result from defective form ation of enamel predisposing to bacterial erosion of th teeth. From the description this child has no signi cant systemic disease. The early loss of teeth will ofte result in minor degrees of malocclusion, which predis poses to food being trapped and permitting overgrowt of oral bacteria with enamel erosion and caries forma tion. The age-periods 5 to 8 years and 12 to 18 yea are periods of an unusually high incidence of carie The best management in such a case is good oral h giene and early filling of cavities with close supervisi by the dentist. If teeth become so badly diseased th they must be extracted, space retainers should be us to maintain proper occlusion. No accurate progno can be given, but with proper care the child shou have functioning teeth for quite a while.

STEROIDS AND PERITONITIS

To the Editor:—*Please comment on the use of co sone and other steroids in the management of seve peritonitis, such as occurs in cases of ruptured pendix.*

William R. Moses, M.D., Washington, D. C

Answer.—The true value of corticosteroids and c ticotropia in the therapy of peritonitis is unknown. tention has been called to the benefits of the so-call anti-inflammatory and toxin-blocking effects of th hormones, but knowledge of the mechanisms and s nificance of these phenomena is incomplete. Th agents have also been shown to inhibit antibody form tion in some situations, and it is clear that clini evidence of an infection's progression or even an int abdominal catastrophe may be obscured by stero therapy. Thus, the question of their use is controversi

In spite of this contradictory evidence, however, is certain that relative adrenal insufficiency at tim accompanies overwhelming sepsis. To this extent dogmatic statement condemning the use of steroid for peritonitis is unacceptable, and the following polic seems justified and practical at the present time. Th patient suspected of having relative adrenal insu ciency secondary to previous steroid therapy deserv hormone treatment in a stressful situation, such peritonitis, particularly if surgery is contemplated. E clusive of this group, there are patients with periton who do not respond to preparation for definitive surgery by the intelligent use of accepted supportive measures. The addition of steroid therapy in the management of such patients is probably justified. It must be emphasized, however, that these agents are not substitutes for conventional measures. Strict attention must be paid to the surgical, antibiotic, fluid, and electrolyte needs of the patient. The plasma deficit resulting from the peritoneal "burn" must be appreciated and replaced. It is likely that this aspect of treatment is often neglected.

The surgeon responsible for the care of the patient receiving steroids must not be misled by the clinical improvement which may attend such therapy. This apparent improvement should not influence a previously formed opinion regarding the indication and need for surgery. Steroid therapy, once started, should be continued throughout the course of an acute illness. Withdrawal of these agents should be gradual and cautious, and it is suggested that hormonal treatment be terminated before antibiotics are withdrawn. In summary, these agents are not substitutes for either clinical judgment or proper surgical and supportive therapy. Used intelligently and cautiously, they may at times be helpful in the preoperative preparation or the postoperative management of patients with severe peritonitis.

ISOLATION OF PARAKEETS TO PREVENT TRANSMISSION OF PSITTACOSIS

To THE EDITOR:—*In Queries and Minor Notes in the March 9, 1957, issue of* THE JOURNAL, *page 909, under the heading of "Hazard of Parakeets in Hospitals," most pertinent questions in regard to hazards from these birds seemed to be answered except one which seems to be of considerable practical interest. Presumably, the usual custom is to purchase one bird which is then isolated in a cage, entirely away from other birds, in the home, hospital, or elsewhere. How long a period of isolation is necessary so that the bird will be presumed to be unable to transmit psittacosis if it remains healthy?*

Maurice A. Walker, M.D., Kansas City, Kan.

ANSWER.—Incipient psittacosis cannot be detected in psittacine birds except by virus isolation, which requires killing the bird. Apparently healthy parakeets may spread the virus throughout their lives. Latency is essential to the psittacosis parasite to maintain its infection chain. From 5 to 20% of immature parakeets offered for sale may be infected. The majority of these young birds free their tissues of this infectious agent within a few months, but some never lose the virus. During their "convalescence" they may be, or may become, shedders when subjected to certain stresses—adaptation to a different environment, excessive fondling, chilling, and such factors.

The following experiment vividly illustrates that it is impossible to set a definite time at which a parakeet can be declared not contagious. A parakeet fatally infected four older persons before its death from psittacosis; its cagemate appeared healthy. For six months thereafter, when this cagemate was kept in a closed glass cage in the laboratory with a succession of highly susceptible ricebirds introduced at intervals as cagemates, these ricebirds died of psittacosis. After that time ricebirds introduced did not become infected, but 10 months after the latently infected parakeet had been picked up from the household, live virus was found at autopsy in its spleen and liver.

All parakeets offered for sale should be treated for an adequate time with feed containing an adequately high concentration of tetracycline compounds. Tests in aviaries and pet shops have shown that interrupted oral treatment for 15 days with a total of not less than 30 mg. of any tetracycline compound will render the birds noninfectious, and within a month after the termination of treatment the tissues of 95 to 100% of the parakeets will have been freed from the viral agent. Certainly from the standpoint of public health, untreated parakeets should not be allowed in hospitals or households.

MILK CONSUMPTION BY ADULTS

To THE EDITOR:—*A young man, aged 21 years, in good health, has never abandoned drinking milk with his meals. He dislikes coffee or tea and consumes at least one quart of milk daily. Should interdiction be suggested to prevent possible metabolic disturbances or the deposition of renal calculi as he grows older?*

Joseph Backlar, M.D., Richmond Heights, Mo.

This inquiry has been referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Milk is an important source of nutrients which are needed throughout life, and its continued consumption by adults is desirable accordingly. There is no evidence justifying the interdiction of the drinking of one quart a day by a healthy adult on the basis that this use might cause metabolic disturbance or the deposition of renal calculi.

ANSWER.—The question pertaining to "potential metabolic disturbances" suggests cholesterol metabolism. This whole subject is still in the realm of active research. If fat intake seems most important in this connection, one should recognize that milk is by no means a high-fat food (when it contains 3.9% fat by weight, giving 51.3% of the total calories). On this basis milk would not seem to be the first food to be eliminated to reduce fat intake. If atherosclerosis were known to exist or if blood cholesterol levels were unusually high, the use of milk reduced in fat might be considered. This choice, however, may be contraindicated when one considers the question pertaining to kidney stones. Some evidence has been reported relating renal calculi to vitamin A deficiency in animals. If there were any question of diabetes or other metabolic disturbance interfering with the formation of vitamin A from carotene, the 1,600 I. U. or more of preformed vitamin A obtained from a quart of whole milk would be a safeguard. So far as the possibility that the one quart plus other intake of milk would make calcium intakes so high as to raise question of supercalcification is concerned, apparently even doubling the normal level of calcium intake has no such effect in the normal individual. Again, only if the patient already had evidence of renal calculi or belonged to a family where the incidence of stones is high would there seem to be any reason to anticipate problems related to the levels of calcium intake which are suggested by the ingestion of even more than one quart of milk daily. Until further evidence is available, it would seem reasonable to permit this normal young man to continue to enjoy his quart or more of milk per day.

RESIDUAL IODIZED OIL IN THE BACK

To the Editor:—*A patient has complained of vague low back pains, essentially in the lumbar and sacroiliac areas, for the past year; for the past four weeks he has complained of areas of neuralgic pain over the skin of the right lower quadrant and at times the right thigh and right knee. The pain in the right thigh and right knee does not seem to follow the course of sciatic radiation. It is fleeting in character but may persist for hours; it is relieved to considerable extent by analgesics. Fifteen months ago a large intervertebral ruptured disk was removed between L-4 and L-5 to relieve severe root pain in the left ankle and the lateral aspect of the left foot. The disk was sequestrated, and after this surgery the root pain and numbness in the left foot were relieved. Yet, the vague lumbar aches and neuralgic pains over the right lower quadrant, right knee, and right thigh, anteromedian, persist. Recent x-rays reveal that "numerous small and large opaque droplets, presumably representing Pantopaque or Lipiodol, are present in the lower lumbar subarachnoid space; there is a suggestion of an operative defect in the region of the articular processes of L-4 and L-5 on the left side." Spinal fusion was not done as instability did not seem to be too marked. Could the residual iodized oil be responsible for the neuralgic picture and the vague low back pains? Should another attempt be made to remove these radiopaque mediums, even though the operator attempted to do so at the time of making the myelogram but was not successful?*

M.D., Florida.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—It is not believed that residual iodized oil is responsible for the vague aches and pains of which this patient complains. If the oil is broken up into small droplets, it would be impossible to remove it, even though the cauda equina were exposed surgically. Suggestions include rest, support, mild analgesics, heat, and any other conservative therapeutic measures, including encouragement, which are available. If symptoms become worse, further extrusion of disk material on the other side or at a higher level should be considered as a possible cause of complaints.

Answer.—The question of whether residual-iodized oil within the subarachnoid space causes irritation and symptoms has been debated pro and con for years and probably dates back to the first use of this substance. The literature contains a number of articles supporting the contention that it does cause symptoms. The fact that there is a paucity of statistics to support the other side of the argument is of no moment. Patients who do not have symptoms do not present themselves for study. There must be many thousands of patients going about their normal daily activities in the United States with varying amounts of these nonabsorbable oily substances within the subarachnoid space. It is rarely possible to remove every droplet of this oil after making a myelogram. Most of the patients who have this oil within the spinal canal do not realize that i is there. Extensive review of the literature has no been carried out, but this consultant is not aware o any series of cases in which the removal of residual oi as a sole treatment for symptoms arising in the spina canal and attributed to arachnoiditis has resulted i relief of symptoms.

If it can be determined by means of gravitation flow that the residual iodized oil in this patient mobile, there would seem to be no harm in attemptin its removal. However, previous to its removal it is sug gested that some oil be added and that myelography b repeated. A recent series of myelograms done im mediately after the removal of herniated disks hav indicated that the defects seen in the preoperativ myelograms persist postoperatively in some cases. Th work is not yet published. It is this consultant's opinio that, if it can be determined that the residual symp toms are arising from the fourth interval, fusion of th interval of the distraction type should be carried ou

ALCOHOL AND GLYCERYL TRINITRATE FOR MYOCARDIAL INFARCTION

To the Editor:—*Please comment on the alleged da ger in the use of glyceryl trinitrate (nitroglyceri and/or alcohol in a coronary attack.*

M.D., California.

Answer.—The expression, "in a coronary attack," i interpreted to mean the pain associated with acute myocardial infarction. As a rule, this attack of pain is severe, and the use of morphine is indicated to control the pain. The use of glyceryl trinitrate is indicated in attacks of pain caused by angina pectoris brought on by effort. Patients who have myocardial infarction often are in shock, and their blood pressure is low. Glyceryl trinitrate tends to lower the blood pressure. It usually is considered to be contraindicated, because of this factor, when myocardial infarction is present.

lcohol has no specific action which modifies the image after acute coronary arterial insufficiency. oreover, by the vasodilating action of alcohol, blood ressure is lowered and the insufficiency of the coro- ry circulation is further increased. Hence, on scien- fic grounds, there is no indication for the use of al- ohol in the presence of myocardial infarction.

E-TREATMENT OF SYPHILIS

O THE EDITOR:—*In 1942 a 42-year-old man had a history of a penile sore at the age of 22. Serologic examinations revealed 4+ Wassermann and Kolmer reactions, a clear spinal fluid with a cell count of 60 per cubic centimeter, a 4+ spinal fluid reaction, and a paretic type of colloidal gold curve. Between May and August of 1942 the patient was given a total of 39 Gm. of tryparsamide. Subsequent tests in 1946 included a spinal tap, with all tests negative, no colloidal gold curve, 2+ Wassermann and Mazzini reactions, a doubtfully positive Kolmer reaction, and a doubtful 1+ Kahn reaction. In May, 1947, the Wassermann and Mazzini reactions were 4+; the Kolmer reaction was 2+. In August, 1947, the Mazzini reaction was 4+, and the Kolmer reaction was 4+. In 1954 the patient came in complaining of dizziness. Further tests showed a doubtful 2+ Mazzini reaction and a weakly reactive Venereal Disease Research Laboratory test. The patient was referred to a neurologist who felt that he should have a repeat spinal tap and that his then present condition was a manifestation of syphilis of the central nervous system. The patient, however, refused to have another spinal tap because of a severe headache after his last one. This year the patient came in for an insurance examination. Blood serologic tests revealed a weakly reactive Venereal Disease Research Laboratory test and a nonreactive Kolmer test. A spinal tap revealed a clear fluid with a total protein content of 32 mg. per 100 cc. Venereal Disease Research Laboratory and Kolmer tests were both nonreactive. At the suggestion of the state laboratory a Treponema pallidum immobilization test was done on March 30, 1957, and was reported by the Communicable Disease Center, Venereal Disease Research Laboratory, Chamblee, Ga., as follows: Treponema immobilization test, reactive; Treponema immobilization complement-fixation test, reactive. The only positive sign of syphilis is a slightly larger right pupil, but both pupils react to light and accommodation. The patient is completely asymptomatic and apparently has had no treatment since the original treatment with tryparsamide in 1942. How should he be treated?*

E. G. Bourns, M.D., Westfield, N. J.

ANSWER.—The patient in question should now be eated with 6 to 10 million units of a repository peni- illin product, e. g., procaine penicillin-in-oil or Bicil- n, given in 10 to 16 injections two or three times a eek. This advice is given not because of the persistent blood serologic tests or of the positive Treponema immobilization and Treponema immobilization complement-fixation tests in blood and/or spinal fluid; these are of relatively little importance. It is also given in spite of the fact that the most recent examinations of the spinal fluid (cell count not stated) are normal as to total protein content and serologic tests.

The advice is given because the inquirer indicates that the only antisyphilitic treatment which the patient has had for neurosyphilis (presumably asymptomatic in 1942) was 39 Gm. of tryparsamide. This is not enough treatment to provide him with much security for the future. The penicillin treatment advised may be regarded as prophylactic and should offer him about 95% security for the future.

DRYNESS OF MOUTH AND TONGUE

TO THE EDITOR:—*A patient, aged 70 years, has had an absolute dryness of the mouth and tongue for the last two years. Examination is negative except for moderate obesity and associated hypertension, which has been corrected, and mild conjunctivitis. The salivary glands are not unusual. Complete blood cell count, urinalysis, nonprotein nitrogen level, blood cholesterol level, and blood electrolyte concentrations are all within normal limits. Basal metabolic rate and radioiodine (I^{131}) uptake are normal. The patient is not a mouth breather. He states, however, that there are occasional periods in which the mucous membrane has a little moisture. What can be done to help this patient?*

J. Will Fleming Jr., M.D., Moberly, Mo.

This inquiry has been referred to two consultants, whose respective replies follow.—ED.

ANSWER.—It is possible, and perhaps likely, that the medication used for control of hypertension is responsible for the dryness of the mouth and tongue. This is a common complaint of patients who are receiving Rauwolfia-like preparations. Dry mucous membrane in the mouth is sometimes seen in association with the pharyngitis sicca which usually accompanies both true atrophic rhinitis and the atrophic type of chronic rhinitis often present in elderly people. The latter may evidence endocrine changes after the male or female climacteric. Checking hypertensive drugs used for this patient and the administration of potassium iodide, 0.3 Gm. three or four times daily, together with an adequate fluid intake, might help this patient.

ANSWER.—The condition described would seem to meet the requirements for classification as Sjögren's syndrome. According to Dorland, this syndrome is characterized by "dryness of all mucous membranes, resulting from deficient secretion of the glands, particularly the lacrimal and salivary glands, those of the upper respiratory tract, the sweat glands, and the glands of the stomach." The syndrome usually appears in elderly people. There is no known treatment which has a general effect. Locally, artificial tears can be used in the eye whenever the symptoms require. The most satisfactory of the artificial tears is Isopto-Alkaline Ophthalmic Solution. Cortisone applied locally to the eye has an ameliorating effect for some patients who have this syndrome, but when it is taken by mouth it is of no value.

STERILIZATION OF SHOES

To the Editor:—*Is there a method of sterilization of rental shoes with skates which the owner of a roller-skating rink might use to cut down the incidence of "athlete's foot"?* *M.D., Pennsylvania.*

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—There is no satisfactory method of sterilization of shoes. Strong fungicides, such as formaldehyde, even if effective would cause in some individuals an irritation and sensitization. Furthermore, they would in time damage the shoes. It is therefore recommended that to keep the feet and shoes dry a bland dusting powder composed of the following be used: bismuth subgallate, 1½ dr. (5.8 Gm.); zinc sterate, 3 dr. (11.6 Gm.); amylum, 4 dr. (15.5 Gm.); and talcum, 4 oz. (124.4 Gm.). This powder should be sprinkled in the shoes before and after they are used.

Answer.—In "Diseases of the Skin" by Ormsby and Montgomery (ed. 8, Philadelphia, Lea & Febiger, 1954), there is the following passage on sterilization of shoes:

> Cleanse the shoes of extraneous debris with mild soap and water; dry with a cloth; place a wad of cotton in each shoe and spread out to form an insole; pour onto this insole (in each shoe) 1 teaspoonful of solution of formaldehyde (U.S.P.) diluted in 1:10; put shoes in paper box; close and wrap in paper and leave shoes in box at least six hours; remove shoes from box, remove and discard cotton; place them in air for twenty-four hours; apply saddle soap to all parts of shoes, and allow to dry; polish. The formaldehyde can be neutralized by placing the shoes in a 0.5 per cent solution of sodium bisulphite for two minutes.

For a business organization, carrying out the above would be a very difficult assignment. Finding competent, conscientious help would be an insurmountable difficulty. There is also to be taken into consideration the effect of formaldehyde on leather, and the use of aqueous solutions on leather would be harmful as well as dangerous owing to the use of metal and leather. It would probably be better to impregnate socks in a fungistatic or fungicidal solution, dry same, and supply each customer with same, compelling use over the customer's own socks. The best idea would be to compel each person to supply his own shoes with skates. At the present time, when parental monetary allowances have assumed such fantastic proportions or odd jobs offer such rich monetary rewards, this would not be a prohibitive expense especially when a contagious disease so difficult to cure is involved.

ANTICOAGULANT THERAPY

To the Editor:—*A patient was admitted to the h pital with a questionable diagnosis of a b tumor. An angiogram was done and then a ven ulogram, after which a diagnosis of a vasc thrombosis (middle cerebral) was made. Admi tration of Dicumarol was ordered, with d prothrombin time tests. The patient has been r ceiving this drug for two weeks prior to writing. H is about to be discharged from the hospital, a he and his family have been told by consultants t he will be all right. He is to continue the Dicuma therapy at home, with a biweekly prothrombin ti test, under his physician's supervision. The lite ture states that Dicumarol is a dangerous drug a that it has no effect on an already formed thromb its effect being simply to prevent the formation further clots. Can the drug be given for an indefi period of time?* *M.D., Rhode Island.*

Answer.—Dicumarol may be given indefinitely, provided that fairly frequent prothrombin determinatio are made. The patient must have had his Dicumar medication well established during his hospital sta and therefore a continuation of the present dosag with twice-weekly prothrombin determinations, wou be quite safe. Dicumarol is a dangerous drug unle properly supervised.

The original damage from the cerebral thrombos is still there. The purpose of the Dicumarol therap is to minimize the dangers of repeated recurrences c clotting. It is presumed that blood cholesterol dete minations have been made, for in many cases of cerebral thrombosis these levels are apt to be elevated. I such is the case, the patient should have a relatively low fat intake, in addition to his medication with Dicumarol. Both of these methods of treatment are precautionary only and do not correct the original damag

NYLON SUTURE MATERIAL

To the Editor:—*Ordinary monofilament nylon fishin line has been used as a suture material for years wit excellent results. It is now desired to use nylon ski sutures (not buried) and to sterilize this material i suitable lengths from bulk spools. Initial experiments have indicated no change in length or breaking strength after routine steam autoclaving. Th material most available is ordinary fishing line of th type intended primarily for spinning reels. Is thi material likely to have been treated with any chemical which might cause unfavorable tissue reactio or interfere in some other way with its use as a suture material? Also, what would be the recommended method of sterilization if autoclaving is deemed undesirable?*

Wayne E. Armstrong, M.D., Gwinn, Mich.

Answer.—While one can use ordinary monofilamen nylon fishing line as suture material for skin closure it is much preferred that nylon sutures prepared b eputable manufacturer of suture materials be util- d. The manufacturers of fishing lines may subject nylon to treatment with various chemicals for the rpose of plasticizing and waterproofing the lines. estuffs of unknown origin may be utilized to color nylon fishing lines. Such treatments may vary m manufacturer to manufacturer. Suture manufac- ers who label their nylon sutures as "U. S. P." oducts are required to meet the specifications for nabsorbable surgical sutures as outlined in the Phar- acopeia of the United States U. S. P. XV. If a coal-tar rivative dyestuff is utilized to color a nonabsorbable ture, the manufacturer of that suture is required to ilize a dyestuff that is certified by the United States ood and Drug Administration. Nylon can be steril- ed satisfactorily by autoclaving under standard con- tions.

REATMENT FOR LEPTOSPIRAL DISEASES

o THE EDITOR:—*What is the current treatment for leptospirosis icterohaemorrhagica (Weil's disease) and leptospirosis canicola (Stuttgart's disease)? Are the spirochetes sensitive to any known antibiotic, and, if so, what is the recommended dosage?*

M.D., Montana.

ANSWER.—There is no really satisfactory treatment or these two diseases. Penicillin, Aureomycin, Terra- nycin, and streptomycin are all moderately effective n vitro, but in vivo their effect is not clear-cut. It is robable that these antibiotics are reasonably effective f given before the onset of symptoms or during the irst few days of illness. Terramycin and streptomycin re probably the best. The former should be given n doses of 2 to 3 Gm. and the latter in doses of 2 Gm. a day. Treatment after the infection has become established is of doubtful, if any, benefit.

ECTOPIC GASTRIC MUCOSA

TO THE EDITOR:—*Please supply information concerning ectopic gastric mucosa. Could this be the cause of a tumor, and what is its clinical significance?*

William G. Abel, M.D., East Hampton, N. Y.

ANSWER.—The presence of epithelial elements of the gastrointestinal tract within the wall of the stomach is not rare. These are developmental anomalies and not true neoplasms in the sense of being uncontrolled new growths of tissue. Nevertheless, because of their gross appearance they are frequently included in classifications of benign tumors of the stomach. Terms applied to these lesions include "heterotopic or ectopic pancreatic tissue," "adenomatous tumors," and "adenomyomas." The foci of ectopic tissue, which are usually solitary, occur anywhere in the stomach and are most common in the submucosa of the pyloric portion. Grossly, these lesions may result in projecting masses or diffuse thickening of the gastric wall. Some are cystic, and occasionally a duct opening into the lumen of the stomach may be present and even demonstrated by x-ray examination. The overlying gastric mucosa, which is usually intact, may occasionally be ulcerated. Microscopically, pancreatic tissue, the duodenal glands known as Brunner's glands, and glands like those of the stomach or colon may be present. Pancreatic tissue, with acini and ducts and without islets of Langerhans, is most frequent. When the ectopic tissue is in the muscularis, proliferation of muscle about the epithelial elements, as in adenomyomas (endometriosis) of the uterus, is common. Clinical manifestations include epigastric pain, pyloric obstruction, and occasionally hemorrhage. A few reported cases of carcinoma have been thought to originate in such heterotopic tissue.

OCCUPATIONAL DISEASE IN THE TANNING INDUSTRY

TO THE EDITOR:—*Kindly supply information regarding morbidity in tannery workers who are exposed to potent chemicals.*

T. J. Kern, M.D., Hartford, Wis.

ANSWER.—Up to a few decades ago, the tanning industries were a prolific source of occupational diseases as to both number and variety. In 1925, Minster published a paper on hazards in the tanning industry (*J. Indust. Hyg.* 7:299, 1925). These hazards involved both bacterial and chemical exposures. At that time the outstanding opportunities for damage centered about the chromates, benzene, hydrogen sulfide from the decomposition of organic matters, and divers tannins, both natural and synthetic, the former embracing several exotic woods, such as quebracho. There are several forms of tanning which are almost distinct enterprises. These include the tanning of sole leather, shoe leather, upholstery leather (the latter two forms involving coating operations), and, finally, special and fine skin leathers, such as those used for gloves. Synthetic leathers and substitutes for leather have enormously modified tannery operations. At the present time the exposures in the tannery industries have so well been brought under control that the incidence of occupational disease is low. The total number of diseases scarcely warrants group compilation or statistical analysis. Dermatitis remains the chief threat, with the chromates and tannins constituting the major offenders.

PSORIASIS AND GARLIC

TO THE EDITOR:—*Is there any clinical evidence that garlic extract is of any value in the treatment of psoriasis when applied topically?* *M.D., Maine.*

ANSWER.—Psoriasis is a therapeutically erratic disorder for which practically everything has been recommended for treatment. Garlic has been suggested for the treatment of a long list of entities. It was inevitable that the two should meet in the treatment of psoriasis. Garlic itself is not only unpleasant to the olfactory organ but is irritating to the skin when applied locally. Personal experience with the topical application of garlic has been confined to a group of lepers isolated in a separate cottage. Ambulatory psoriatics would not be pleased with the cutaneous burns produced by such applications or by the social ostracism that would greet one with garlic on the skin. Garlic extract tablets, such as those used in the treatment of hypertension, and extracts of this plant (Allium sativum) are characterized by the odor that has become diagnostic of garlic in the vicinity. Before accepting this agent as an effective treatment for psoriasis, a great deal of work is necessary to establish its efficacy in this spontaneously remittent disease, to mask its odor, and to eliminate those factors that burn the skin.

TREATMENT AFTER RADICAL MASTECTOMY

To the Editor:—*A 50-year-old woman, four years past the menopause, noted a lump in the right breast. Examination disclosed a mass about 4 in. in diameter. A frozen section showed it to be malignant, and a radical resection was performed. Pathological report showed 14 axillary nodes to be invaded by metastases. The tumor was adenocarcinoma. There is no other spread. Should this patient be subjected to deep x-ray therapy or to an ovariectomy or hormonal therapy as a precautionary measure?*

M.D., Massachusetts.

Answer.—There is a great difference of opinion in regard to this query. The consensus would be that this patient should have x-ray therapy to the supraclavicular and internal mammary areas on the side of the lesion and should not have an ovariectomy or hormonal therapy until positive indication arises.

ENDOCRINE THERAPY AFTER REMOVAL OF MALIGNANCY

To the Editor:—*A woman, aged 46 years, had a radical mastectomy for a malignancy of the breast about two years ago but no irradiation. The lymph nodes dissected from the axilla were normal, and there have been no signs of regrowth or metastasis to date. Would there be any contraindications to using testosterone for relief of severe menopausal symptoms?* *Leo. J. Greenberg, M.D., Chicago.*

Answer.—At the age of 46, this patient probably has ovarian failure from organic senescence, with lowered estrogen activity and perhaps some elevation of 17-ketosteroids. She has "severe menopausal symptoms," which probably means "flushes" and vasomotor instability. There is still discussion as to the effectiveness of sex hormone therapy in the relief of such symptoms. There apparently are no metastases and no evidence that the tumor was "estrogen dependent." As is known, there is no direct evidence that estrogens are carcinogenic agents in the human. However, most physicians would be unhappy with the addition of any sex steroid in a patient who has no evidence of recurrence or metastasis of breast cancer two years after operation. Psychotherapy, tranquilizing drugs or barbiturates suggest themselves as preferable alternates to either testosterone or estrogen therapy in relieving what is a temporary inconvenience.

ENURESIS

To the Editor:—*The superintendent of a boys' home has asked me for information concerning a group of bedwetters, aged 14, 15, 16, and even 18 years. The boys have been given ¾ grain (50 mg.) of ephedrine sulfate each night before retiring and have had good results while the drug has been administered; some of them have been cured. Is there any danger in the prolonged use of ephedrine sulfate in these youths as far as cerebral stimulation or other complications are concerned?*

John F. Raycroft, M.D., Brooklyn, N.Y.

Answer.—This consultant cannot sympathize with drug treatment of enuresis as a general procedure, because it is often merely a placebo, and the condition evades diagnosis. Enuresis is most frequently a psychiatric symptom in a multisymptomatic psychiatric disorder. The superintendent of the home should obtain psychiatric service for the youths. Enuresis is a sign of anxiety and psychopathological immaturity of ego development.

GENERALIZED ATOPIC DERMATITIS

To the Editor:—*The answers to the query concerning the management of atopic dermatitis in* The Journal *for March 30, 1957, page 1197, demonstrate the need for more complete understanding of this "strange disease." Atopic dermatitis, or neurodermatitis disseminata (atopic eczema), in all but very young infants does not appear to be a manifestation of specific allergy, with extremely rare exceptions. Elimination diets, cutaneous testing, and desensitization lend little to the management of this disease; in fact, they are generally useless.*

The etiological factors in atopic dermatitis and in duodenal ulcer, ulcerative colitis, migraine, and some cases of asthma and rheumatoid arthritis appear to be similar, if not identical. It is a stress complex, the skin being the organ which reflects the emotional tone of the individual, although other organs or systems may also be affected simultaneously or alternately. Emotional factors dominate as the trigger mechanism in the exacerbations of the disease in those persons who constitutionally react cutaneously to stress. The type of emotional disturbance, of course, varies, although infantile attitudes, repressed aggressions, fears of failure, and guilt complexes seem to be common. Psychiatric management, especially in groups of such individuals, appears to be useful as adjuvant therapy; individual therapy generally has not been as successful.

Hospitalization or drastic curtailment of normal activities is probably not desirable, unless there are specific indications for such, as in the case of marked *secondary infection or other important complications. Adjustment to the normal stresses of everyday life is a necessity, and the elimination of these stresses for periods of time, although it generally will give relief, does not make for the development of a satisfactory adjustment. Compulsive activity is better controlled by insight than by enforced stoppage; activity is actually a means toward remission.*

The use of steroids, locally and/or parenterally, is of considerable aid in the control of exacerbations and for maintenance of severe conditions. If the patient is under careful observation and the smallest doses are used for control, there seems to be little attendant danger of undesirable side-effects in relation to the atopic dermatitis. It is important that dosage be gradually diminished. Rarely, tranquilizers and sedatives have demonstrable desirable effects. Indicated local measures aid in the healing of severely affected areas; antibiotics are useful in the control of secondary infectious processes.

A fuller understanding of this common distressing disease, as well as its relation to other dermatological and systemic diseases, is greatly to be desired. A research foundation for the study of atopic dermatitis should be organized and endowed to this end.

W. F. Edmundson, M.D.
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The above comment was referred to one of the conultants who answered the original query, and his eply follows.—Ed.

o THE EDITOR:—*The comment is a well-considered presentation of the physicians' concept of atopic dermatitis. One must agree that a fuller understanding of atopic dermatitis, as well as the establishment of a special research project or foundation for its study, is to be desired. Such efforts have been made in the past but unfortunately did not meet with success.*

As yet there is great confusion and disagreement about the etiology of atopic dermatitis. Recent articles by Gans (Tr. St. John's Hosp. Dermat. Soc., *no. 37, p. 1, 1956) and Baer* (Excerpta Med. *[sec. 13]* 11:*47, 1957) well present the conflict of opinion, and so does the recent controversy on the role of allergic factors in atopic dermatitis in the correspondence and editorial sections of the* Journal of Allergy (J. Allergy *27:293, 480, and 483, 1956). The Pennsylvania physicians add their concept to the controversy.*

Atopic dermatitis always has been a mysterious disease which has given rise to much speculation. The French authors who first clearly set apart atopic dermatitis as lichen simplex chronicus (Vidal), neurodermatitis (Brocq), and prurigo diathesique (Besnier) some 70 years ago proposed "autointoxication" and nervous elements as etiological factors. In the 1920's and 1930's allergy became the fashion of the day, to be followed by the concepts of psychosomatic disorders; now it is the stress complex, which according to Selye is the common denominator of disease. Most of these theories have been proposed by men of great knowledge and insight into the problems. Yet there is a tremendous difference of opinion. Obviously a simple hypothesis will not do. One may well accept stress as a mediator of various underlying factors, such as allergic, emotional, infectious, and endocrine, in persons endowed with a peculiar physical and psychological make-up.

There are some statements in the comment of the Pennsylvania physicians which should not go unchallenged, such as the fact that allergic management is generally useless. Allergy plays a great role in some cases of atopic dermatitis at every age, although it is only one factor in the picture; in infantile eczema it is frequently of decisive importance. As the patient grows older, other factors, especially emotional, become more important. Hospitalization in severe cases is of great help so as to give the patient rest and allow a thorough allergic and psychiatric investigation to be made away from the physical and emotional home environment. It is at times the only means which demonstrates to the patient that something can be done for him.

Management of atopic dermatitis is not necessarily dependent on the administration of this or that medicament or the application of this or that theory. It depends much more on the physician, who has an interest in the disease and takes the time to give his patient care and understanding, and on the patient, who is confident that his physician is willing and able to help him.

MONARTICULAR ARTHRITIS AFTER POLIOMYELITIS VACCINATION

To THE EDITOR:—*Apropos the answer to a query in* THE JOURNAL *for June 29, 1957, page 1035, I should like to call attention to the fact that monarticular arthritis can occur after poliomyelitis vaccination and that this can be evidence of an acute gouty attack. I make this statement because a 35-year-old man, who had never suffered previously from an acute attack of gout, had three such attacks during a seven-month period last year, each within 12 hours after his "polio shot." The response to the administration of colchicine and the clinical picture were typical of gout. I feel certain that other physicians will have a similar experience as more of the poliomyelitis vaccine is used on adults. It is not unusual for other substances, such as liver extract, to precipitate a gouty attack. I should suspect that the high nucleoprotein content of killed viruses might account for such a diathesis.*

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SALTING FRESH MEAT TO REMOVE BLOOD

To the Editor:—*Reference is made to the query concerning the salting of meat and its relation to a salt-free diet, which appears in* The Journal *for July 6, 1957, page 1174. In the correspondence section of* The Journal *for Dec. 19, 1953, page 1472, data provided indicate that meat processed according to Jewish dietary law has its sodium content increased remarkably. However, if the salting is not excessive, cooking takes out practically all the added sodium. Additional comments of interest with respect to salted meat and its treatment by boiling, broiling, frying, or roasting have been made in the correspondence section of* The Journal *for March 27, 1954, page 1114.*

George X. Trimble, M.D.
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The above comment was referred to the consultant who answered the original query, and his reply follows.—Ed.

To the Editor:—*It has been almost four years since the publication of the letter in* The Journal *about salt-poor diet and Jewish dietary laws, and some of the information could well bear repeating. Dr. Bruno Kisch has given some data indicating that the processing of raw meat according to Jewish dietary law increases the sodium content remarkably. He found that an average piece of beef containing 55 mg. of sodium per 100 Gm. before being salted contained 234 mg. per 100 Gm. after being salted according to the usual Jewish dietary laws. It was shown that, if salting is not excessive, cooking takes out practically all the added sodium. The soaking of salted meat in cold or warm water before cooking removes the salt sprinkled on the surface quite well, especially if the amount of salt is not excessive. It seems that, if treated meat is to be used in a salt-poor diet, the cook should use a minimum of salt, allow the meat to stand only for the religiously permissible period of time, and cook the meat in a generous amount of fluid and throw away the broth.*

PROLONGED STEROID TREATMENT OF ASTHMA

To the Editor:—*A part of the answer by the first consultant to the query regarding prolonged steroid treatment of asthma in* The Journal *for March 9, 1957, page 908, is, in my experience, wrong. I refer to the sentence wherein the consultant deprecates skin testing for food allergy in children.*

If there is any age group in which food-allergy skin tests closely approach the clinical findings, it is in the case of children. In this group such foods as nuts, fish, eggs, milk, and cereals frequently alert the experienced allergist to one or more of the causes of the allergy, since the younger the patient the greater is the possibility of food allergy being a factor, and its detection is expedited by skin tests expertly utilized.

In this connection the difficulties in the past as well as at the present time stem from certain factors. 1. The technique is poor; a control must be used with each series of tests so as to evaluate hypersensitive reactions, which are really negative but are oftentimes called positive, with consequently incorrect interpretation and clinical result. 2. Skin testing is not a laboratory procedure but requires the personal services of a skilled allergist, both from a safety-to-life standpoint when intracutaneous tests are performed and for the expert evaluation of the findings (correspondence section, J. A. M. A. 152:355 *[May 23] 1953).*

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PEDIATRIC DOSAGE OF STEROIDS

To the Editor:—*This is with reference to a statement of the consultant in his answer to a query concerning pediatric dosage of steroids which appeared in* The Journal *for July 6, 1957, page 1174.*

The consultant stated: "Prolonged use of cortisone will suppress growth of children when used in doses of 45 mg. or less per square meter of body surface daily." I believe the phrase "or less" should really read "or more," inasmuch as a report on the effects of cortisone therapy on the growth of children (Blodgett and others: New England J. Med. 254:636, *1956), from which possibly the consultant derived his information, states: "A minimum of 45 mg. per square meter [of body-surface area] per day was required to reduce the growth rate of endocrine-normal children."*

*This statement bears out some observations by Hill on this subject (*New England J. Med. 253:821 *1955), pointing to the fact that, in a series of allergic children whom he was treating with cortisone over prolonged periods of time, no evidence of retardation of growth could be found sufficient to warrant withholding cortisone when it was needed.*

George X. Trimble, M.D.
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The above comment was referred to the consultant who answered the original query, and his reply follows.—Ed.

To the Editor:—*The physician is correct. The statement should read: "Prolonged use of cortisone may suppress growth of children when used in doses of 45 mg. or more per square meter of body surface daily."*

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Most Major Health Bills Await Action Next Year
National Commission Proposed on Influenza
Social Security 'Medicare' Plan Suggested
UMW Reports on Welfare and Retirement Fund

FEW BILLS ENACTED IN FIRST SESSION

No surprises developed in medical legislation during the closing days of the first session of the 85th Congress. As a consequence, only three bills in this field were signed by the President in the last week of the session.

One again makes federal inspection of poultry mandatory, with the processors paying all costs. The Department of Agriculture will be in charge, with the secretary deciding which of several divisions of the department will do the actual work.

In addition to assuring wholesomeness of poultry and poultry products put on the market, the new law aims at maintaining sanitary facilities and practices at slaughterhouses and processing plants and requiring correct and informative labeling.

The other two bills enacted in the final week amend vocational rehabilitation programs. One authorizes continuation of old grants (as long as left-over money remains) to expand and improve state plans, and the other permits three-year training grants in vocational rehabilitation and physical medicine, instead of the former two-year limit.

Nor were there many bills enacted earlier in the year. One important one amended the selective service act to limit special obligation to physicians through age 35 who have received deferments. Under it doctors may be called because of their professional status, rather than by the age groups which govern call-up of other men.

In another amendment, Congress changed a law enacted only last year that set up a new program of federal assistance for the medical care of public assistance recipients. Early this year several states discovered that unless some changes were made they would not be able to take advantage of the full federal offer, and in at least one case the state would be getting less federal aid than previously. The law corrected this situation.

In its effort to improve the medical care of Indians, the Public Health Service, which took over this responsibility in 1955, endorsed a bill to have the U. S. make grants for construction and equipment of hospitals to be used by Indians and non-Indians alike. It was explained that Hill-Burton grants were not always the answer, because many communities on or near reservations operate on such a low economic scale that they are unable to raise the sponsor's share needed to qualify for Hill-Burton loans. This bill passed late in the session.

Aside from these measures, very few health or medical bills even made their way out of committees. The National Medical Foundation for Eye Care, supported by the American Medical Association, opposed a section of the bill that would have given optometrists the same pay and status as physicians, but neither organization opposed the pay increase section of the bill. The bill was reported out of the House Veterans Affairs Committee, but there was no further action as the Rules Committee was not asked to schedule the bill for a floor vote.

NATIONAL COMMISSION ON INFLUENZA PROPOSED

State and Territorial Health Officers want Surgeon General Burney to appoint a national commission on influenza and to recommend a specific list of priorities to govern use of the vaccine. Dr. Burney is studying the possibility of appointing a research commission, and already has made informal suggestions for priorities.

The two recommendations were among a number adopted by the State and Territorial Health Officers at a two-day meeting in Washington, D. C., called by the surgeon general to acquaint the health officers with developments to date in the Asian influenza situation and enlist their full support in the campaign that is being organized to minimize the effects of epidemics.

Participating in the meeting also were Dr. Harold Lueth, Chairman of the A. M. A. Special Committee on Influenza, and his committee members, who for several months have been supplying physicians with detailed information on Asian influenza and encouraging them to take the lead in setting up community committees or councils to make effective use of health facilities and personnel.

The commission suggested by the health officers would be concerned mainly with the scientific aspects—keeping track of the changes if any in the virus and its effect on humans. It would consider "not only the urgent problems in connection with the current epidemic but also long-range problems associated with the behavior of the Asian and other strains of influenza virus in the population during the next decade."

Action taken earlier by the Public Health Service to start the voluntary allocation of vaccine by states was endorsed by the health officers, who called on the PHS also to recommend to civilian physicians that they observe the following priorities in vaccinations: first, to those whose services are necessary to maintain health of the community; second, to those whose employment is necessary to maintain other basic services; and third, to persons with tuberculosis and others who constitute a special health risk.

However, it was proposed that local committees, not the PHS or state health departments, designate the classes of persons to be regarded as performing "basic community service," and therefore entitled to early vaccinations.

Regarding laboratory diagnosis to establish presence of Asian influenza, the health officers state:

"The important laboratory work lies in the substantiation of an epidemic and is of little value to the individual patient. In the identification of an outbreak, throat washings and paired sera should be submitted from at least twelve clinical cases, accompanying the specimens should be a clinical abstract and data on how specimens were taken. The specimens should be gathered in the face of an explosive outbreak of upper respiratory illness within the first three days of illness and submitted through the state health authority.

"Technical information on securing and preparing specimens together with restrictions should be disseminated through state channels. Local health authorities should participate in the evaluation of an epidemic situation in accordance with existing policy."

It was also suggested that "several states" be selected to gather intelligence rapidly on occurrence of pneumonia, often a complication of influenza.

It was proposed that weekly state reports to the PHS include but not be limited to symptoms and etiology, complications and mortality, and age groups involved.

SENATOR NEUBERGER FAVORS "MEDICARE" UNDER SOCIAL SECURITY

Senator Neuberger (D., Ore.) believes the time has come to set up a system of government-paid hospitalization for old people covered by social security, modeled as closely as possible to the Dependent Medical Care program that for more than nine months has been operated by the Defense Department.

Although the senator has not worked out a draft of his bill yet, he believes a 2% increase in social security taxes—1% each on workers and employers—would meet the hospitalization costs.

In addition to free hospitalization, the Neuberger plan includes payment for in-hospital surgical costs. Unlike the military–Public Health Service Medicare program, which bills the patients for the first $25 in civilian facilities or $1.75 per day in military, the senator's plan would make no charge against patients.

The Neuberger idea is to make use of Blue Cross or other nonprofit groups, using arrangements similar to those now in effect in many states under Medicare.

Senator Neuberger outlined his views when talking before the national convention of the Brotherhood of Eagles, where he also suggested that permissible outside earnings for those receiving Social Security retirement benefits be increased from the present $1,200 to $2,400 per year. Later he said a great deal of interest was shown by the Eagles in his hospitalization-for-the-aged plan.

UMW FUND HOSPITALIZES 63,779

The United Mine Workers' Welfare and Retirement Fund report shows that during the last fiscal year (ending last June 30), the fund paid $59,500,000 for 1,631,144 hospital days' care for 93,679 sick or disabled miners. The hospitalized cases entailed 1,556,111 visits by doctors, and in addition 885,944 outpatients clinic and office consultations by specialists are noted.

Over the 12 months, the fund's unexpected balance increased by more than 10%, from $130,100,000 to $145,300,000. Revenue for the year—from royalties on coal mined—totaled 157 million dollars, and expenditures $141,900,000.

In discussing the medical care program, the report says in part:

"In compliance with the basic obligation of the trust fund to maintain complete and final control over all fund benefit programs and funds expenditures for them, these regulations, which have continued in effect throughout this fiscal year, require for eligible beneficiaries a high quality of hospital and medical services at a reasonable cost to the fund."

Pension payments to 63,009 retired miners totaling 75 million dollars made up the biggest single expense during the year.

AEC MAKES ITS 100,000th SHIPMENT OF RADIOISOTOPES

In a little over 11 years, the Atomic Energy Commission has shipped 100,000 packages of radioisotopes from its Oak Ridge National Laboratory as part of AEC's program in developing the peacetime uses of atomic energy. The first shipment was made Aug. 2, 1946, to a St. Louis skin and cancer clinic. The 100,000th shipment went out Aug. 26 of this year to the University of Iowa, also for use in medical research.

AEC said more than 4,000 organizations have been licensed to use radioisotopes, while many others have received small quantities of radioactive material under general license.

"There has been a rapid increase in the quantities of radioisotipes per shipment in recent years," an AEC announcement said. "This is because of the increased number of shipments to commercial suppliers which buy bulk quantities of radioisotopes in single shipments from Oak Ridge. These are then processed into radioactive drugs, chemical compounds, radiation sources, and resold in thousands of shipments each month to licensed users."

PERSONNEL

The deputy commander of Walter Reed Army Medical Center, Thomas J. Hartford, has been promoted to brigadier general. He has been in the Army for 27 years.

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HYPOTHYROIDISM

Arnold S. Jackson, M.D., Madison, Wis.

Thirty-seven years' experience in diagnosing and treating thousands of patients who have hypothyroidism has illustrated to the author that this chronic affliction not only occurs frequently in the Middle West but, more unfortunately, often goes unrecognized. The primary reason for overlooking hypothyroidism is the placing of too much reliance on a single metabolic test. Such a test rarely registers lower than it should, in contrast to frequent false-high readings. Equally important as the metabolic test is symptomatology; one of the most frequent complaints, seldom mentioned in the literature, is that of headache. In treating hypothyroidism the potency of various thyroid preparations must be given as much consideration as the dosage, for the successful results can depend as much on the use of strictly fresh tablets as on the administration of them.

Hypothyroidism is the most frequent chronic affliction and at the same time the most often overlooked condition affecting persons residing in the Middle West. This statement based upon an experience of 37 years in diagnosing d treating thousands of these cases seen at the ayo and Jackson clinics.

In countries whose civilization is many centuries d, as in Switzerland and in India where goiter has een prevalent for hundreds of years, hypothyroidism prevalent, as is cretinism, the end-result of goiter. he last survey made of cretinism in the United States as made by me in 1934, and this study showed a articularly high incidence of this condition in Wisonsin and other Midwestern states. Hypothyroidism prevalent in areas where for many generations ersons afflicted with goiter have resided. As a conequence, decreasing numbers of normal thyroid lands are found in the descendants. Such a condion has occurred in the great goiter belt that stretches ross our country from Boston to Seattle and roughly orth of the Mason-Dixon line. Just as the water and il of this area are deficient in iodine, goiter and ypothyroidism are prevalent, and here the highest cidence of cretinism may be found. So the pattern the same as in the older countries of the world.

Errors in Diagnosis

What is the reason that so many cases of hypothyidism go unrecognized? Frequently too much relice is placed in the report of a single metabolic st. Even when an initial test is made with a reliable achine by an accurate technician it may be incorrect if the patient is nervous or apprehensive and breathes rapidly. A report of perhaps +10% is registered for one that actually should read −15%. So the doctor assures the patient that the test is normal and that there is nothing wrong with the thyroid gland. More often the test is reported much higher, and then the physician is led to make the mistake of feeling that his patient is hyperthyroid instead of hypothyroid. In my files are records of 228 cases of this nature, in which metabolic tests were reported as high as 90% in persons whose thyroid glands were normal. In all these cases thyroidectomy had been advised largely on the basis of these false metabolic tests. Thus, even

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From the Frieda Meyers Nishan Foundation for the Study of Goiter and Thyroid Diseases of the Jackson Clinic.

Summary

After a 37-year study of hypothyroidism in the Midwest, I consider this condition to be the most frequent and most overlooked chronic disease in this area.

Nervousness and apprehension in a patient greatly affect the results of the basal metabolic test, and false-high readings occur frequently. The importance of repeating the metabolic test and of getting a thorough clinical history and physical examination of the patient is shown by the fact that in my files are 228 cases in which metabolic tests were reported as high as +90% in persons with normal glands.

Symptomatology is of prime importance. A symptom of hypothyroidism not mentioned often in the literature is headache. The most frequent cause of daily headache is hypothyroidism, and treatment of th hypothyroid condition often gives dramatic relief.

Some thyroid preparations are not reliable; no should be dispensed after three months, and occasio ally a patient may require a fresh supply at short intervals. Doses smaller than 1 grain (60 mg.) a d are rarely of value. I give 1 grain a day to youn children and to adults with a mild hypothyroid condition. Eighty per cent of my patients receive 2 grain (0.12 Gm.); no ill-effects have been noted from thi dosage.

30 S. Henry St. (3).

References

1. Jackson, A. S.: Goiter and Other Diseases of Thyro Gland, New York, Paul B. Hoeber, 1926.

SODIUM LIOTHYRONINE IN METABOLIC INSUFFICIENCY SYNDROME AND ASSOCIATED DISORDERS

PRELIMINARY REPORT

Joseph H. Morton, M.D., New York

The syndrome of metabolic insufficiency differs from hypothyroidism in that it occurs in persons whose thyroid gland function appears to be normal. Patients with this disorder do not respond to even large doses of desiccated thyroid. Some of the clinical manifestations of metabolic insufficiency, relieved by L-triiodothyronine, are chronic fatigue, dry hair, dry skin, irritability, and emotional instability. The response to L-triiodothyronine suggests that daily stress created by demands on metabolically insufficient patients can cause nervous anxiety, tension, depression, or despair. By increasing the metabolic rate, resistance to stress may be increased and the patient made more capable of facing daily tasks.

The syndrome of metabolic insufficiency (hypometabolic state) is perhaps one of the most common metabolic disorders seen in everyday practice. At the same time, it may go unrecognized or misdiagnosed for a number of reasons [1]: it has only recently received serious attention as a clinical entity; its symptoms are vague, nonspecific, and seldom totally disabling; it cannot be detected by thyroid function tests; and it is generally not relieved adequately by conventional medication. This syndrome is characterized by low normal or subnormal basal metabolic rate (usually −15 to −30%), by clinical signs and symptoms of deficient metabolism, and by normal thyroid gland function as indicated by normal values for serum protein-bound iodine, cholesterol, and radioactive iodine (I^{131})-uptake tests.[2]

Thus the syndrome of metabolic insufficiency differs from hypothyroidism in that it occurs in persons whose thyroid gland function appears to be normal. There is no reduced synthesis or output of thyroid products, as measured by I^{131}-uptake and protein-bound iodine tests. When it is established that the low basal metabolic rate is not caused by adrenal insufficiency, nephrosis, hypopituitarism, hypogonadism, anorexia nervosa, or malnutrition, the presence of metabolic insufficiency can be presumed.

An explanation for this condition has come various investigators since the discovery of sodiu thyronine (3,5,3′ L-triiodothyronine).[3] It has appe that L-thyroxine must be deiodinated to liothyr in the peripheral tissues before it becomes activ patients with metabolic insufficiency this conve ay be incomplete because of some defect: general ody tissue insensitivity to the thyroid hormone[4]; apid destroying, storing, or inactivation of thyroid ormone[5]; decreased permeability of the cells to hyroxin[1e]; or an intracellular defect.[6] Such a defect, vhatever its nature, leads to generalized or localized igns and symptoms. Chronic fatigue, somnolence, or ethargy are common. Also prominent are dry hair, lry skin, infertility, dysmenorrhea, menstrual irregularity, sensitivity to cold, joint and muscle aches and stiffness, obesity, irritability, emotional instability, and constipation. These are similar to the changes seen in hypothyroidism, but less severe. Each symptom or sign by itself may result from various disorders. However, several of these signs and symptoms, together with a low normal or subnormal basal metabolic rate, constitute the syndrome of metabolic insufficiency.

Patients with this disorder often do not respond to even large doses of desiccated thyroid.[7] An explanation for this has been based on the theory that in such patients even endogenous thyroid hormone is not utilized adequately. Sodium liothyronine, however, has been reported to produce both metabolic and clinical responses in a number of cases.[8] The present study was conducted, therefore, to evaluate the efficacy of sodium liothyronine in a large group of patients with metabolic insufficiency or specific metabolic disorders. The aims of this study were to survey the incidence of signs and symptoms in patients with metabolic insufficiency, and to define the syndrome more clearly; to evaluate the clinical efficacy of sodium liothyronine in patients with metabolic insufficiency or associated metabolic disorders; and to compare responses with those from desiccated thyroid, thyroglobulin, and thyroxine in previous treatments.

Materials and Methods

A total of 80 patients were studied. On the basis of clinical evidence, each patient was placed into one of two groups. In group 1, there were 51 patients who had been given a diagnosis of metabolic insufficiency. In group 2, there were 29 patients with specific (or localized) metabolic disorders such as obesity, infertility, salt and water imbalance, and gynecologic disturbances. The latter group included all patients with one dominant or severe disorder.

Group 1 consisted of 45 females and 6 males between the ages of 13½ and 53 years. The average age was 32.9 years. None of the group were myxedematous, nor could they be considered hypothyroid by usual standards. The predominant symptom was chronic fatigue, noted in 88% of the group. The predominant sign was obesity, seen in 75%. Also present in various combinations were menstrual disturbances, 67%; dry hair, dry skin, and/or brittle fingernails, 57%; nervousness, irritability, depression, and/or mental apathy, 51%; muscle or joint aching and stiffness, 47%; and sensitivity to cold, 43%. Puffiness of the face was also noted.

Protein-bound iodine levels were normal, ranging from 3.6 to 7.5 mcg. per 100 ml. of serum (table 1). Basal metabolic rates varied from normal (+2%) to subnormal (−40%). (Even though the basal metabolic rate was normal in some cases, if signs and symptoms of metabolic insufficiency were present, such cases were included.) Serum cholesterol levels, determined in 12 patients, were within normal limits. Other laboratory findings were negative.

Thirty-six of this group had been treated previously with desiccated thyroid, thyroglobulin, or thyroxine (table 1). The average tolerated dose was 2 to 3 grains (0.12 to 0.2 Gm.) of desiccated thyroid per day.

TABLE 1.—*Description of Patients Before Sodium Liothyronine Therapy*

		No. of Patients						Responses to Previous Therapy*					Side-effects from Previous Therapy					
	Diagnosis	Total	Male	Female	Age Range, Yr.	Range in BMR, %	Range in PBI, Mcg /100 Ml.	Excellent	Good	Fair	Poor	Undetermined†	Increased Nervousness	Tachycardia	Dyspnea	Excessive Sweating	Muscle Cramps	Other
Group 1	Metabolic insufficiency	51	6	45	13½-53	+2 to −40	3 6-7.5		3	14	19	15	18	10	6	6	7	7
Group 2	Female sterility	9	...	9	25-35	−7 to −19	4.4-7.6			2	6	1	2	1	1	1	1	
	Male infertility	3	3	...	27-30	...	...				1	2						
	Gynecologic disorders	7			14½-48	+1 to −15	3.2-6 6											
	Secondary amenorrhea			1								1						
	Oligomenorrhea			2							2		1	1	1	1		
	Menometrorrhagia/ precocious puberty			1					1				1					
	Menstrual irregularity			1					1				1	1				
	Menopausal syndrome			1							1		1	1	1	1	1	
	Primary hypogonadism			1					1									
	Obesity	5	1	4	13-38	+6 to −15	3.2-5 8		1	1	3			1				1
	Intractable idiopathic edema	5	...	5	32-47	−1 to −3	4.0-6.5				3	2						
Totals		80	10	70	...	...	...	0	7	17	35	21	24	15	9	9	9	8

* Desiccated thyroid, thyroglobulin, or thyroxine
† No previous treatment or response unknown

Side-effects had developed in 18 of the group. Therapeutic responses had been excellent in none, good in 3, fair in 14, poor in 19, and undetermined in 15.

Group 2 consisted of 25 females and 4 males between the ages of 13 and 48. The average age was 29.8 years. Diagnoses were as follows: female sterility in nine patients, male infertility in three, gynecologic disorders in seven, primary obesity in five, and intractable salt and water imbalance in five (table 1).

Protein-bound iodine levels were found to range from slightly subnormal to normal, 3.2 to 7.6 mcg. per 100 ml. Basal metabolic rates varied from +1% to −19%. Other laboratory findings were negative, except results of sperm analyses in the infertile males and ovarian function tests in the infertile females.

Twenty-one of the group had been treated previously with desiccated thyroid, thyroglobulin, or thyroxine. Side-effects had been noted in 7 patients, and responses had been excellent in none, good in 4, fair in 3, poor in 16, and undetermined in 6.

TABLE 2.—*Responses to Treatment with Sodium Liothyronine*

	Diagnosis	No. of Patients	Responses				Side-effects, No. of Patients
			Excellent	Good	Fair	Poor	
Group 1	Metabolic insufficiency	51	23	23	4	1	2
Group 2	Female sterility	9	3*	5*	1*		
	Male infertility	3	2	1			
	Gynecologic disorders	7					
	Secondary amenorrhea			1			
	Oligomenorrhea		1			1	1
	Menometrorrhagia/ precocious puberty		1				
	Menopausal syndrome					1	1
	Primary hypogonadism			1			
	Menstrual irregularity			1			
	Obesity	5	3	2			
	Intractable idiopathic edema	5	3	1	1		
Totals		80	36	35	6	3	4

* Excellent indicates successful pregnancy. Good indicates correction from anovulatory to ovulatory cycle or pregnancy that terminated by spontaneous abortion. Fair indicates relief of menstrual irregularities or improvement in type of cycle but not as consistent as in "good." Poor indicates no change.

Over a period of three to nine months, each patient was treated with sodium liothyronine. Starting doses varied from 5 to 25 mcg. daily. Maximum doses ranged from 10 to 100 mcg. daily. At no time were sodium liothyronine and thyroid preparations given simultaneously. A time interval of one to three weeks elapsed after previous drugs were withdrawn before the test drug was given. In this way, responses were not materially influenced by residual effects from previous medication.

Responses to treatment were rated according to relief of ectodermal, musculoskeletal, reproductive, and other objective signs; relief of fatigue, mental apathy, nervousness, and other subjective symptoms; and over-all clinical response as compared with previous therapies. The ratings were as follows: excellent, indicating complete remission of symptoms or a marked response in one to two weeks, especially when previous therapies had not evoked any response; good, indicating a marked though incomplete response, or remission of symptoms after more than two weeks; fair, indicating partial remission of symptoms, regardless of dosage; and poor, indicating no change in the patient's status. Controls or placebos were not considered necessary, since previous therapies could be used for comparative responses.

Results

Group 1.—Results of therapy with sodium liothyronine in group 1 were excellent in 23 patients, good in 23, fair in 4, and poor in 1 (table 2). In those patients showing good to excellent responses, the most common and beneficial response was loss of fatigue. With an increase in energy, many patients reported more alertness upon awakening, less need for midafternoon naps, and an ability to accomplish more work. Those patients who were nervous and restless, and those with emotional depression or anxiety, became calmer. This response generally paralleled an increase in a sense of well-being. Sensitivity to cold was relieved, as patients noted increased warmth during the winter months. Muscle and joint aching and stiffness subsided or completely disappeared.

Objective improvements, more reliable to the clinician but perhaps not as important to the patient, were also noted in those patients who showed excellent to good responses. Twenty-two of 38 obese patients lost weight; the average loss was 9.3 lb. (4 kg.). Dry hair and dry skin became oilier and smoother. Other disorders such as brittle fingernails, facial puffiness, and menstrual irregularity were relieved. To illustrate excellent responses, two typical case histories are presented below.

Report of Cases

CASE 1.—A 32-year-old female sought treatment because of chronic fatigue, vague muscle pains, obesity, and inability to conceive during the previous seven months. Her hair was thick and coarse, and her skin was smooth. She menstruated every 28 or 29 days, for 4 to 5 days. (Formerly, every 24 days for about 3.) The protein-bound iodine level was 3.6 mcg. per 100 ml. of serum, and the basal metabolic rate was −21% after many months of treatment with desiccated thyroid. Premenstrual smears showed a late secretory phase with increased estrogenic stimulation. Other laboratory and clinical findings were normal. The patient had been treated previously with 3 grains (0.2 Gm.) of desiccated thyroid daily for approximately six months. There was no change in symptoms during this treatment, and no toxic reactions were noted.

On Oct. 11, she was started on therapy with 5 mcg. of sodium liothyronine daily. At the end of one week, there was a marked improvement in her outlook and energy. The dosage was increased to 10 mcg. daily for the second week, after which time the patient was "feeling fine" and "sleeping better." Her hair was silkier, and muscular aching had subsided. The dosage of sodium liothyronine was gradually increased to 25 mcg. daily. On Nov. 25 (after six weeks), the patient reported she felt fine, had more energy, had no joint stiffness, and had "no complaints." At this time she had lost 9.5 lb (4.3 kg.) and her hair appeared to be soft and oily. Commenting on her loss of weight, she said, "Everybody notices the change in me." Rating: excellent response.

CASE 2.—A 32-year-old female presented chief complaints of chronic fatigue (especially in the afternoon) and tendency to gain weight. She had gained 30 lb. (13.6 kg.) during two years.

Other symptoms present were vague joint and muscle pain, mild sciatica, sensitivity to cold, and menorrhagia. The hair was slightly dry, the skin was rough, and the face was slightly puffy and pasty. There was no hirsutism. The palms were warm and moist. She menstruated every 28 days for about 6 days. She had had two miscarriages, as well as two completed pregnancies. The protein-bound iodine level was 5.1 mcg. per 100 ml. of serum, and the basal metabolic rate was —10% after prolonged treatment with desiccated thyroid.

This patient had been treated by several physicians for chronic fatigue and lethargy, without much success. In 1947, her basal metabolic rate was —17%. During treatment with 2 grains (0.12 Gm.) of desiccated thyroid daily, her basal metabolic rate had increased to —11%, but all symptoms had persisted to some degree. Medication was started with 12.5 mcg. of sodium liothyronine daily and increased to 25 mcg. during the second week. The patient reported that she began to feel better, had more vigor, and could "do more housework." Also, her skin was notably clearer. Treatment was continued at 25 mcg. daily. At the end of the fourth week, she had lost 12 lb. (5.4 kg.) and felt much improved. One month later she was completely free of symptoms. Muscle aching and pain had subsided, there was an increased feeling of warmth, and menstrual flow became shorter in duration. Rating: excellent response.

Maximum dosages given to patients in group 1 were 10 to 25 mcg. daily in 33 patients, 37.5 to 50 mcg. daily in 15, and 67.5 to 100 mcg. daily in 3. Side-effects of jitteriness, tachycardia, and nervousness were observed in two patients. These reactions disappeared completely within five days after medication was stopped. In the remaining patients, there were no side-effects, no significant changes in blood pressure or pulse during therapy, nor any signs of acquired refractoriness to sodium liothyronine.

Group 2.—Results of treatment with sodium liothyronine in group 2 were excellent in 13 patients, good in 12, fair in 2, and poor in 2 (table 2). The three patients with male infertility showed improvements in sperm count, in one case from 11 million cells per cubic centimeter to 45 million per cubic centimeter, with increased viability and survival of the sperm. Eight of the nine females with long-standing infertility showed normalization of ovulatory cycles. Four patients became pregnant. One of these aborted, so her response was labeled as good rather than excellent. Patients with gynecologic disorders generally showed a good response, except one patient with menopausal syndrome and one with oligomenorrhea. Both of the latter could not tolerate the drug.

The five patients with primary obesity showed weight losses ranging up to 54.5 lb. (24.7 kg.) during a nine-month period. In these cases, sodium liothyronine proved to be superior to desiccated thyroid. The five patients with intractable salt and water imbalance showed marked diuresis during treatment. Two patients in group 2 reported tachycardia, increased nervousness, and insomnia from sodium liothyronine. One was taking 12.5 mcg. daily; the other was taking 25 mcg. daily. The remaining 25 patients tolerated the drug satisfactorily. The over-all efficacy of sodium liothyronine in this group is illustrated by the case histories below.

Case 3.—A 31-year-old female had severe menorrhagia, in addition to several signs and symptoms of metabolic insufficiency. Presenting symptoms were chronic fatigue, insomnia, bitemporal headaches, groin pains, extreme sensitivity to cold, and stiffness of the joints. She stated that she worried excessively, was anxious, and had been given psychiatric treatment. Her hair was dry and sparse, and her skin was dry. Examination revealed no other abnormalities. Menstruation occurred every 30 to 35 days and lasted for about 7. Flow was heavy, and occasionally small clots were excreted. The protein-bound iodine level was 5.2 mcg. per 100 ml., and the basal metabolic rate ranged below —15%.

Sodium liothyronine was given in increasing doses up to 25 mcg. daily. At the end of two weeks, the patient showed a marked improvement and was more alert mentally. Her aches and pains had disappeared, and she reported a feeling of improved well-being. At the end of the second month, she had not been having headaches and signs of nervousness were gone. At the end of the third month, she felt much calmer ("Now I can take everything in my stride"). Menstrual periods had become more regular (25 to 30 days), less heavy, and excretion of clots had ceased. In addition, the patient had "more zest for living." Rating: excellent response.

Case 4.—A 31-year-old female presented chief complaints of obesity and oligomenorrhea. She had been overweight since adolescence and had "always felt lazy and sluggish." In recent years, she had had intermittent periods of amenorrhea, which lasted from 3 to 17 months. She had not responded adequately to 1 to 2 grains (0.06 to 0.12 Gm.) of desiccated thyroid daily and a 1,500-calorie diet. Treatment with 2 grains of thyroglobulin daily had resulted in only slight fluctuation in weight; mercurials had caused temporary diuresis but not reduction in weight.

The hair was slightly dry, the hands and palms were normal, and there was generalized obesity. Her height was 63.5 in. (160 cm.); weight 221.75 lb. (100.6 kg.); blood pressure, 138/84 mm. Hg; pulse rate, 84 beats. The basal metabolic rate was +6%, and routine laboratory tests showed no abnormalities.

Medication was started with 12.5 mcg. of sodium liothyronine daily, which was increased to 25 mcg. daily after two weeks. After three months, her periods had become more frequent (30 to 40 days apart), she felt much less depressed, had more energy, and her hair was smoother. Her weight at this time was 187.25 lb. (85 kg.), a loss of 34.5 lb. (15.6 kg.). As the dosage of sodium liothyronine was increased gradually to 50 mcg. daily during the next two months, her weight continued to drop at the rate of about 1 lb. (0.5 kg.) per week. At the end of nine months, her weight had dropped to 167.25 lb. (75.8 kg.), a loss of 54.5 lb. (24.7 kg.). Subjectively, the patient felt "much better" than she had in years and had no complaints. Rating: excellent response.

Case 5.—A 32-year-old female was given a diagnosis of intractable idiopathic edema. She reported that she had always had some premenstrual edema and tension, but recently edema had persisted throughout the menstrual cycle. The edema was intensified for two to three days at midcycle and four to five days premenstrually, and occasionally she gained as much as 10 lb. (4.5 kg.) in 24 hours.

Her history showed that she had had a cystic left ovary removed six years previously. A year afterwards, she had noted swelling of the entire body premenstrually. Treatment with mercurials had afforded only temporary relief, whereas an oral medication [9] prevented or relieved the premenstrual symptoms. She had been married two years, but had never been pregnant. The menses occurred every 28 days and lasted 3 to 5 days and varied in amount of flow. Physical examination revealed a well-developed female, 65.5 in. (165.10 cm.) tall, weighing 152.5 lb. (69.1 kg.). No abnormalities were seen, other than moderate obesity and edema of the ankles. The protein-bound iodine value was 6.5 mcg. per 100 ml. of serum, and other test values were normal.

On Sept. 8, the patient was started on therapy with 12.5 mcg. of sodium liothyronine daily, and her condition was maintained with a *high-protein, low-sodium diet.* The dosage was increased to 50 mcg. daily during the next month. On Oct. 28, she reported slight bloating and edema, although her weight was essentially unchanged (152.75 lb. [69.2 kg.]). On Nov. 11, on the 27th day of her 28-day cycle, the patient was feeling fine "for the first time in years." No swelling was noted, and there was no premenstrual tension. Previously, she had gained at least 3 or 4 lb. (1.3 or 1.8 kg.) at such times. On Nov. 18, the patient was still improved, although she had ingested a large volume of fluids. No postmenstrual edema was present, and her weight was 148.75 lb. (67.5 kg.). She had experienced normal flow. On Dec. 2, the patient had no swelling or edema, and roundness of the face had disappeared. She reported that she was wider awake during the day, and slept better at night. The dose of sodium liothyronine was reduced to 25 mcg. daily. On Dec. 9, there was slight premenstrual swelling, but less than previously. She had been eating as she wished, except for a minimum of salt.

The reduced dosage of sodium liothyronine seemed to cause some exacerbation of symptoms, so it was increased again to 50 mcg. daily during the next month. The patient was seen each month until May 10, and she had remained improved. There was no edema either before or after menstruation, and the patient was free of all symptoms. Rating: excellent response.

Comment

The results of this study have shown a relationship between metabolic insufficiency and many common disorders. Most common was fatigue, a complaint of 88% of group 1. Obesity, menstrual irregularities, dry hair and skin, and nervous or emotional disorders were seen in more than 50%. Relief of these and other symptoms with sodium liothyronine, compared to the relatively slight response with desiccated thyroid, thyroglobulin, or thyroxine, supports the theory that these symptoms were caused by insufficient metabolism at the cellular level. In the patients with specific metabolic disorders (group 2), it appears that the basic defect causing metabolic insufficiency was severe in certain organ systems. Infertility, obesity, and various gynecologic disorders were shown to be relieved by metabolic stimulation.

Approximately 15% of the patients in this study had been referred by psychiatrists. Another 5% had undergone psychotherapy or analysis, and one had been given electroshock therapy. It is important to note that most of these patients reported considerable relief of the mental and emotional symptoms from sodium liothyronine. Such responses suggest that daily stress created by demands on a fatigued and metabolically insufficient patient can cause nervousness, anxiety, depression, or despair. By increasing the metabolic rate, resistance to stress may be increased, and the patient is more capable of facing daily tasks. This theory has, in fact, been supported by Timaras and Woodbury,[10] who have recently shown that in rats sodium liothyronine increases brain excitability, enhances the capacity of the brain to support maximal electroshock seizures, and shortens postictal depression. Further studies of the role of metabolic insufficiency in mental and emotional disturbances are, therefore, recommended.

Summary and Conclusions

The clinical effects of sodium liothyronine have b determined in 51 patients with metabolic insufficie and in 29 patients with specific metabolic disorde The criteria for diagnosing the syndrome of metab insufficiency are outlined as (1) low normal or su normal basal metabolic rate, (2) multiple coexiste signs and symptoms of deficient metabolism, a (3) normal thyroid gland function, as indicated b protein-bound iodine or radioactive iodine (I^{131}) uptake tests.

Responses to sodium liothyronine generally we superior to responses to desiccated thyroid, thy globulin, or thyroxine. Good to excellent [illegible] with sodium liothyronine were elicited in 46 of 5 (or 90%) of the patients with metabolic insufficienc Of this same group, 36 patients had previously be treated with desiccated thyroid, thyroglobulin, thyroxine. Only three, or 6%, had shown good excellent responses.

Included in the study also were 29 patients with t following diagnoses: female sterility, male infertili gynecologic disorders, obesity, and intractable s and water imbalance. Responses were good to exc lent in 25 of these 29 patients. Thus, the rela ion of such disorders to insufficient metabolism is gested. Side-reactions of nervousness, insomnia, tachycardia were noted in 4 of the total of 80 patie No signs of acquired intolerance were observ *From the results of this study, it is concluded t sodium liothyronine is a highly effective and safe the peutic agent for treating patients with metaboli insufficiency and other nonmyxedematous metaboli disorders.*

33 E. 61st St. (21).

Part of the data in this report was presented as a scientifi exhibit at the 105th Annual Meeting of the American Medic Association, Chicago, June 11-15, 1956.

The L-triiodothyronine used in this study was supplied a *Cytomel by Smith, Kline & French Laboratories, Philadelp* The medicament for oral administration used in case 5 w supplied as Pre-Mens by Purdue Frederick Co., New York.

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NEUROLOGICAL CASE HISTORIES OF TWO OLYMPIC CHAMPIONS

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Disease and physical disability may serve as strong incentives for the attainment of motor performances, some of them of a high order of complexity, and of athletic excellence. In one case motivation, possibly from conflict, produced achievements revealing a new insight into the scope of compensatory adjustment of the nervous system. The second case indicates the extent to which an established neuromotor pattern can be projected into previously untrained skeletomuscular regions. Both cases illustrate the possibility of complete functional rehabilitation after major disablement.

While accompanying the United States Olympic athletes to Melbourne, Australia, in November, 1956, I noted that one of the most distinguished members of the track and field team, Harold V. Connolly, U. S. champion and world record holder in hammer throwing, was afflicted with a combined upper and lower left brachial plexus paralysis (Erb-Duchenne-Klumpke-Déjerine type).

Hammer Throwing Champion with Combined Upper and Lower Left Brachial Plexus Paralysis

Connolly, aged 25, a young man of intelligence and modesty and of strong moral principles, was able to give a precise history of his affliction. It appears that he suffered an injury at birth. As far back as he could remember, the left arm had hung at the side as it does at present: internally rotated at the shoulder with the elbow extended and the hand pronated. The whole left upper extremity is underdeveloped, a fact which is all the more evident as the right arm is unusually powerful and extremely well trained. The difference in length between the two arms is 4.5 in. The size of the left hand is less than two-thirds that of the right. Circumferential measurements of the extremities differ by 3.5 in. (17.5 versus 14) for the upper; by 2.5 in. (13.5 versus 11) for the lower arm, and by 1 in. (8.25 versus 7.25) for the wrist.

Paralysis of the left deltoid renders abduction at the shoulder virtually impossible. Flexion at the left elbow is performed with feeble power on account of paresis of the flexors, extension can be effected, as the triceps functions well, outward rotation at the shoulder is almost completely lost owing to paralysis of the spinati; biceps and supinator jerks cannot be elicited. There is wasting and weakness of the ulnar flexors of wrist and fingers and paralysis and wasting of the small muscles of the hand, which at rest assumes a semi-closed position resulting from the unopposed action of the long flexors of the fingers.

Sensory symptoms are in evidence, e. g., neuritic pains in the upper part of the arm. The whole left upper extremity is colder and more sensitive to touch along the radial margin and less sensitive along the ulnar. Involvement of the cervical sympathetic nerves is indicated by hyperhidrosis; the skin of the arm feels waxy, the veins of the forearm are soft, in contrast to those of the right side, which are strong-walled and of good tone and tension; the growth pattern of the fingernails of the left hand is abnormal. The patient reports of involuntary twitching of the musculature of the afflicted arm.

Connolly displays a remarkably clear insight into the nature of the psychological and social conflict with which his disability has confronted him from earliest childhood. The conflict was resolved by this mature and courageous man in a manner which eventually enabled him to become the greatest hammer

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From the Kentucky Rehabilitation Center, University of Kentucky.

thrower in the history of athletics. At the same time he completed his academic studies with distinction. For several years Connolly made a scientific study of different methods of athletic training as practiced in various countries. Two years prior to the 1956 Games, he traveled to Europe to consult with a number of famous coaches and former Olympic champions in hammer throwing. He took up weight lifting in order to bring about the greatest possible degree of muscular hypertrophy. In the process he not only developed a powerful right but also, though of course to a much lesser degree, attained a good deal of improvement of the paretic left arm.

On two occasions he suffered fractures. Lying on his back he gripped a bar weighing 125 lb. in his powerful right and the weak and paretic left hand. In trying to lift the weight the atrophic humerus of the left arm broke.

It is a measure of Connolly's solidity of purpose that such major setbacks failed to deflect him from his objective. In both instances he resumed his training as soon as union of the fractured bone had taken place. In October, 1956, he established a new world record in throwing the 16-lb. weight 224.10½ ft. At Melbourne, in the tensest hammer throwing competition ever staged, he won the gold medal—the first American to do so in this event since 1924—defeating among others the champions of Russia, Hungary, Germany, Poland, and England and establishing a new Olympic record. A few days after his return to the United States late in December, he bettered the world record for throwing the 35-lb. weight with a toss of 66 ft. 8.5 in., whereafter the State Department sent him on a goodwill trip to Europe.

Diagnostic Features.—This case calls for comment from several angles. First, the diagnostic aspect. The paralysis of the left arm is of such a kind as to leave no doubt that this is a combined upper as well as lower plexus paralysis, the branches to the branchial plexus from the fifth, sixth, and eighth cervical as well as from the first dorsal nerves being involved.

In the typical Erb-Duchenne upper plexus type of paralysis, movements of wrists and fingers remain unaffected and sensory symptoms are usually absent. In the typical Klumpke-Déjerine lower plexus type of paralysis the fifth and sixth cervical contributions are spared while the first dorsal nerve and at times also the eighth cervical branches are commonly damaged.

In this case upper and lower brachial plexus paralyses are in evidence. Both anesthetic and analgesic, as well as hyperesthetic and hyperalgesic, symptoms are demonstrable. The presence of autonomic and trophic symptoms points to participation of the cervical sympathetic nerves, though pupillary abnormalities are not present.

Analysis of Athletic Performance.—Careful attention was paid to Connolly's technique of throwing the hammer. Wearing a thick glove over the paretic left hand he exerts with it a steering influence upon the steel grip of the hammer, maintaining it fully during the first two turns in the ring. During the third turn, in which he reaches a maximal rotatory velocity, the left hand slips far down so that eventually it holds the steel grip of the hammer with the tips of the fingers only, the full weight being carried by the right hand. "After my best throws the ends of my left fingers are black with blood blisters," Mr. Connolly reports.

Motivation and Quality of Performance.—Disease and physical disability may serve as strong incentives for the attainment of motor performances, some of them of a high order of complexity, and of athletic excellence. A case of a swimming champion with dementia paralytica and of an artist afflicted with advanced multiple sclerosis with advanced paresis and tremor of the right arm which she used in her work have been described elsewhere.[1]

Motivation as well as performances of the category under discussion do at times reflect rather unusual patterns. There is the story, reported some years ago of a frankly psychopathic man, 43 years old, who prior to the war was involved in criminal procedures; who during the war won numerous decorations for conspicuous bravery in combat; and who after the war without demonstrable reason, was unable to find place in society and became an insolvable problem to the welfare authorities.

Lord Byron's life and literary achievements would be inexplicable without appreciation of the fact that this gifted man was deeply disturbed and constantly agitated by the knowledge of being afflicted with a irremediable and severe physical disability. But Diem has also detailed a revealing scene, with all its psychopathic connotations, in which Byron, refusing to accompany the funeral procession at his mother's death, gave expression to his grief by staging in the large hall of his ancestral castle in Newstead Abbey a long and violent boxing fight, gloves and all, against *his friend Rushton.*

Arthur Newton, former world record holder in running distances of up to 100 miles, describes how he decided at the age of 40 to take up competitive athletics in order to demonstrate to the world that in his opinion an injustice was done to him in a protracted litigation with a government department in Natal though it was found he had in fact not even a semblance of a case to argue. For many years, the logic of his decision sufficed to induce him to undergo the most strenuous training and to take part in such races as one from New York to Los Angeles.[4]

By contrast, Connolly's story is distinguished by the fact that the motivation underlying *his prolonged* training is rational in terms of his personal objective, dignified in execution, and, from the point of view of its social evaluation, of a high order of maturity. This young man's motor achievements reveal a new insight into the scope of compensatory adjustment of the nervous system.

Reestablishment of Performance Capacity in Contralateral Extremity After Amputation of Right Hand

"The nervous system" Hughlings Jackson [5] wrote in 1874, "is physically double. I wish to show that it is double in function also, and further, in what way it is double in function." The following observation throws light on the significance of Jackson's classic statement.

At the Olympic Village in Melbourne in 1956, I examined Karoly Takacs, 46 years of age, member of the Hungarian team. Takacs had represented Hungary in the pistol shooting competition at the Berlin Games in 1936, holding at that time ral national and international championships in this sport. 1938 Takacs was involved in an accident which necessitated utation of the right arm midway between elbow and wrist. his discharge from the hospital Takacs decided to continue peting by shooting with the left hand, which he had never s used prior to the amputation. In 1939 he won the world mpionship in pistol shooting at Lucerne, Switzerland. At Olympic Games in London in 1948 and in Helsinki in 1952 was awarded gold medals for the same event. The 1956 npetition in Australia was his fourth Olympic contest.

Comment.—Several features of this case call for mment. First, that the excellence of Takacs' athletic rformances is so great as to place his preamputation well as postamputation attainments into a class of eir own. Secondly, that initially the training which tablished his world fame as a pistol shot was con- ned to the right arm. Thirdly, that the switch-over to e left arm was achieved within the comparatively ort time of eight months. And fourthly, that from en on Takacs continued to improve his athletic mpetence.

Hemispheric Dominance.—This report indicates the tent to which an established neuromotor pattern can e projected into previously untrained skeletomuscular gions. It also raises the question of the dominance one cerebral hemisphere over the other. Prior to e amputation, Takacs was right-handed. It would, he pointed out, not have occurred to him to shoot ith his left hand. The postoperative switch involved ot only the motor aspect of the skilled performance ut also its sensory counterpart, especially in respect the functional integration of the tactile, propriocep- ve, and visual components, of which Adrian has iven a masterly account.[6]

> The visual messages are the most complex and the most portant of all those reaching the human brain. In other imals hearing and smell may be the dominant senses, but in r brains the olfactory pathways have shrunk and smells play very small part in our thoughts and decisions. In all the rtebrates, however, the eyes seem to have dictated the eneral arrangement of the cerebral hemispheres. Owing to the amera structure of the eye an object on the left is focused on e right half of the retina and vice versa. Now the natural rrangement would seem to be that the right half of the retina either eye should be connected with the right cerebral emisphere and the left half of the retina with the left hemi- here, and this is in fact accomplished by a sorting out of the erve-fibres at the optic chiasma before they enter the brain. he result is that an object on the left is signalled by a visual essage which is sent to the right cerebral hemisphere. Now if e object came into contact with the left side of the body or the left hand were put out to touch it, it would be confusing the tactile messages were sent to one side of the brain and the visual to the other. What seems to have happened, therefore, is that the crossing-over of the visual message has made it necessary for all the sensory pathways to cross over, so that all the information reaching one side of the brain comes from the opposite side of the body and its surroundings; and as all the information goes across to the opposite hemisphere, the orders for the muscles must also be elaborated in that hemisphere and the messages for them must come back across the midline on their way down to the spinal cord.

Summary.—This case report then is concerned with the reestablishment of the performance capacity in an Olympic champion in pistol shooting who had attained fame while competing with the right arm and who, after amputation of the dominant extremity, once more became world champion, using the left arm. It emphasizes (1) the part played by the central pattern in the attainment of highly skilled neuromotor performances, (2) the significance of Hughlings Jackson's statement regarding the functional bilaterality of the nervous system, (3) the integrated nature of the performance adjustment after amputation, and (4) the possibility of complete functional rehabilitation after major disablement.

It also raises the question whether the cerebral component underlying the extraordinary neuromuscular efficiency of this patient prior to the amputation explains the transfer to the contralateral extremity.

The German poet, Gotthold Ephraim Lessing in his drama, "Emilia Galotti" wrote that Raphael would have become an immortal painter even if he had been born without arms. Takacs' story corroborates the validity of Lessing's literary imagery.

I am indebted to Lord Adrian (University of Cambridge, England) for permission to quote from his book.

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Fatal Machine Accidents on Farms.—Each year more than 2,000 people in the United States, or 1.3 per 100,000 population, are fatally injured in accidents involving machinery. . . . Over two fifths of all the fatal injuries in machine accidents occur on farms. . . . Tractors account for a considerable loss of life on the farm; overturning is the most common hazard, and frequently results from running the tractor too fast, carrying excessively heavy loads, and from operating it along steep slopes or too near deep ditches. Self-propelled combines, corn pickers, hay balers, hoists, and feed grinders are among the other types of machines usually involved in fatal farm accidents. Although a majority of the deaths from farm equipment are among adults, an appreciable number are among children, some of them quite young.—Fatal Machine Accidents, *Statistical Bulletin of the Metropolitan Life Insurance Company,* October, 1956.

FETOPELVIC GRADING OF BREECH PRESENTATIONS

D. Frank Kaltreider, M.D., Baltimore

In the management of a breech presentation, three factors must be considered in order to decide between vaginal delivery and cesarean section. These are (1) pelvic size, (2) pelvic shape, and (3) estimated fetal weight. Pelvic size can be accurately measured by x-ray pelvimetry. Unless the infant is premature, vaginal delivery is contraindicated in flat pelves with an obstetric conjugate of less than 10 cm. Fetal weight is best estimated by having four or more examiners give an estimate without the knowledge of others and averaging the estimates. In addition to the above three factors, the behavior of the sacrum and consideration of uterine inertia must also be taken into account.

The breech presentation has been a fascinating and depressing problem to obstetricians for many years. It has been fascinating in that, if one is able to extract the breech satisfactorily without injury, one has the sense of accomplishment. In addition, the breech is frequently associated with such problems as congenital anomalies of the uterus, placenta previa, and contracted pelves. It is depressing because so many breech infants die because of prematurity, prolapse of the cord, intracranial hemorrhage, and anoxia.

During the past years, there have been many excellent papers on the general management of the breech, with particular reference to vaginal delivery. The emphasis on cesarean section has been lacking. There has been a hesitation to analyze the pelvic structure, pelvic size, and weight of the infant in order to determine whether any particular breech should be delivered vaginally. Much of this has been done by guesswork, and, when there has been indecision, the ultimate decision has usually been cesarean section rather than vaginal delivery. I will attempt to lay down some criteria for cesarean section in those pelves which are contracted.

Material

At the University of Maryland Hospital from Jan. 1, 1950, to June 30, 1956, there have been delivered 19,414 infants weighing over 400 Gm. Of these, 781 were of the breech presentation, or an incidence of 4.02%. When twins were eliminated, there were 634 breeches occurring in 18,954 single pregnancies, or an incidence of 3.34%. The disturbing factor is the perinatal loss. Table 1 demonstrates the number of single breech deliveries according to weight and the perinatal outcome. It will be noted that even in term births the perinatal loss was high (7.5%). The over-all loss was 23.3%. These figures are usually corrected by eliminating fetal death in utero, patients with hemorrhage and toxemia, and those infants in which there have been prematurity, congenital anomalies, and erythroblastosis. The corrected loss drops in service patients to 2.3% and in private patients to 0%.

I do not feel that this is a proper approach to the problem. I should rather look at the situation as a 23.3% loss and attempt in some fashion to correct this by better obstetric practice to a lower loss rather than by statistical correction.

There were 774 cesarean sections during this pe
of time among the 18,954 single pregnancies, or 4
However, among the breeches this incidence was
It is not necessary to go far into statistical analys
find why the incidence of cesarean section a
breeches is so much higher than it is among the
presentations combined. For example, among the
breech presentations, there were 13 placenta pre
a ratio of 1 in 49, while in the other presentations
ratio was 1 in 346. In patients who had previously
a cesarean section, breech was frequently the deci
factor as to abdominal or vaginal delivery. In t
patients the ratio was 1 in 35, while in the other
entations it was 1 in 103.

In those patients in whom there was either a l
infant or a borderline or actual contraction of
pelvis, cesarean section was done once in ever
breeches; in the remainder of the patients, once i
cases. This is sufficient to raise the cesarean sec
rate from 4% among all presentations to 11% am
the breech presentations.

The combination of breech and contracted pelv
a comparatively small factor among any group of
tients. When an obstetrician is faced with the prob
of a contracted pelvis and a breech presentation,
decision as to the type of delivery is an arbitrary
Guesswork has played the major role in the decisi
for abdominal delivery. We have had this combinati
53 times, 36 times in primigravidas and 17 times i
multigravidas. The primigravidas were delivered v
ginally 17 times, with one fetal loss; cesarean sectio
was used 19 times, with one fetal loss. The vagin
fetal loss is inexcusable, in that this patient's labor wa
over 36 hours in length with aberration of the fet

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Chairman's address, read before the Section on Obstetrics and Gynecology at the 106th Annual Meeting of the American Medical Association, New York, June 5, 1957.

rt rate just prior to delivery. The cesarean section l loss is unfortunate. This section was done early abor; the infant was born in good condition but d in the early neonatal period. Autopsy showed rked subarachnoid hemorrhage. Among the multi- vidas, 11 were delivered vaginally, with one fetal s, and 6 were delivered by cesarean section. All of multigravidas delivered by section had had a vious cesarean section. The reason for the one fetal s in the vaginal group could not be determined.

Table 1.–*Perinatal Loss in 634 Breech Presentations*

Weight, Gm	Total No	No Living	Died No	Died %
400-1,000	73	2	71	97.2
1,001 1,500	42	13	29	69.0
1,501 2,000	46	24	22	47.8
2,001 2,500	62	47	15	24.2
2,501 and over	411	380	31	7.5
otal	634	466	168	23.3*

When corrected for prematurity, twins, fetal death in utero, anomalies, orrhage, and erythroblastosis, the mortality for service patients is % and for private patients 0%

There were 25 women with pelves contracted at the let alone; 13 of these were delivered vaginally, with fetal losses, and 12 by cesarean section with one fetal ss. Twenty women had midplane contractions, of hom 12 were delivered vaginally; and 8 had a con- acted inlet and midplane, of whom 3 were delivered aginally. Since I do not recognize outlet contraction s a pure entity and feel that the outlet and midplane hould be considered as one, outlet contractions are rouped with midplane contractions.

Selection of Type of Delivery

In an attempt to put into concrete form criteria by which one may be guided in the selection of delivery f the breech presentation, three factors must be considered. They are pelvic size, pelvic shape, and estimated fetal weight.

Pelvic Size.–The pelvic size can be accurately measured with only a 1 or 2% error by many of the fine methods of x-ray pelvimetry such as the Thoms, the avert-Steele, or the Caldwell-Moloy methods. These are excellent for determining pelvic shape as well as pelvic size. The most important of the measurements are the obstetric conjugate and the transverse diameter of the inlet at the superior strait and the interspinous and anteroposterior diameter of the outlet at the lower pelvis. Mengert has described areas at these two levels. The inlet area is obtained by multiplying the obstetric conjugate and the transverse diameter: 100%, or normal, is 145 sq. cm.. and 85% of normal, or 123.25 sq. cm., he has designated as borderline. The midplane area is obtained by multiplying the interspinous diameter and the anteroposterior diameter of the midplane. One hundred per cent, or normal, is 125 sq. cm.; 85%, or 106.25 sq. cm., is borderline. As the areas at either plane diminish, so does the incidence of successful vaginal delivery in normal-sized infants. Mengert has ably demonstrated this, and it has been corroborated. This fact will be used later in developing the criteria.

Pelvic Shape.–The after-coming head is accepted well by the normal-sized or even slightly contracted gynecoid and anthropoid pelvis. The head willingly enters the pelvic cavity with the occiput anterior. These two shapes may be considered good ones for the after-coming head. The fact that an after-coming head does not fit well into the flat pelvis has been recognized for many years. The head must enter the pelvis as an occiput transverse and sometimes has to be "rocked" from side to side in order to traverse the pelvic inlet. This may well cause dystocia. If the obstetric conjugate is less than 10 cm., the problem becomes acute. Unless the infant is premature, vaginal delivery is contraindicated in flat pelves with an obstetric conjugate of less than 10 cm. In the android pelvis, particularly when it is smaller than normal, the head has a tendency to enter as an occiput transverse and may well rotate to an occiput posterior as the lower pelvis is reached. When in addition there is funnelling of the pelvis, a major pelvic obstruction is met. Unless the android pelvis is large, it is a poor shape for the after-coming head.

Estimation of Fetal Weight.–All of us are aware that estimating fetal weight prior to delivery is difficult. In this group of patients there was a range from −934 Gm. to +912 Gm. of error when single estimations were used. The average error was an underestimation of 113 Gm. We have attempted to solve the fetal weight problem in the following manner: in any patient, four or more examiners estimate the fetal weight; this is done independently and without the knowledge of the others; these weights are then averaged. There is a tendency in breech presentations, as in all presentations, to overestimate small babies and underestimate large babies.

Table 2.–*Fetopelvic Grading in Breech Presentations**

Pelvic Size (Mengert's Area)	Pelvic Shape	Estimated Fetal Weight, Gm (Lb)
0 Over 90%	0 — gynecoid	0 Premature under 2,500 (5.5)
1 90% to 85%	0 — anthropoid	1 Small 2,500-3,100 (5.5-7)
2 85% to 80%	2 — platypelloid	2 Average 3,100-3,600 (7-8)
3 79% and under	2 — android	3 Large over 3,600 (over 8)

* Grading of 0 to 4 indicates vaginal delivery and 5 and over indicates cesarean section, with following exceptions: (1) platypelloid pelvis with obstetric conjugate greater than 10 cm. is graded 0; (2) transverse diameter less than 10.5 cm. in anthropoid pelvis is graded 2; and (3) any infant weighing over 4,000 Gm. should probably be delivered abdominally

Criteria.–In order to arrive at a graphic representation of criteria for vaginal delivery of breeches, each of the major factors discussed above has been weighted (table 2).

Pelvic Size: At either the inlet or the midplane or both, a Mengert's area of above 90% is graded 0; areas of 85 to 90% are graded 1; those of 80 to 85% are graded 2; and 79% and below are graded 3.

Pelvic Shape: The gynecoid and anthropoid pelves cause very little difficulty as to shape and are graded 0; the platypelloid and android pelves may cause major trouble and are graded 2. However, there are two exceptions. If in the anthropoid pelvis the transverse diameter is less than 10.5 cm., a grade of 2 should be made. If in a platypelloid pelvis the obstetric conjugate is greater than 10 cm., the platypelloid shape should be graded 0.

TABLE 3.—*Grading of Breeches in Contracted Pelves*

	No. of Women in Grade					
	2	3	4	5	6	7
Vaginal delivery	1	13	9	3	2	0
Primary section	0	2	5	9	2	1
Repeat section	0	1	2	2	1	0

Estimated Fetal Weight: Infants below 2,500 Gm. (5.5 lb.) (prematures) are graded 0; those weighing between 2,500 and 3,100 Gm. (5.5 and 7 lb.) are graded 1; between 3,100 and 3,600 Gm. (7 and 8 lb.), 2; and over 3,600 Gm. (8 lb.), 3.

Each patient is then graded from 0 up to a possible 8. The 53 patients with contracted pelves described above were graded, and the results can be seen in table 3. In the vaginal group, five patients were graded 5 and 6. One baby died, and the mothers of three of the remainder were multigravidas. They probably should have been delivered abdominally. In the primary cesarean section group, seven patients were graded 3 and 4. They had the following complications: one had a previous myomectomy, one had a tuberculous hip, and four had acute toxemia. These added problems entered into the decision for abdominal delivery.

Two hundred forty-seven patients with breech presentations had x-ray pelvimetry. Table 4 shows how these were graded. The indications for the primary sections were as follows: grade 0, hemorrhage in one patient; grade 1, erythroblastosis and diabetes in one patient each; grade 2, toxemia in one patient; grade 3, uterine inertia in one patient and nonpelvic indications in four; grade 4, uterine inertia in one patient, toxemia in three, and nonpelvic indications in one; grade 5, nonpelvic indications in three patients, elective section in four, and obstructive l in two; grade 6, nonpelvic indications and elective tion in one patient each; and grade 7, elective sec in one patient.

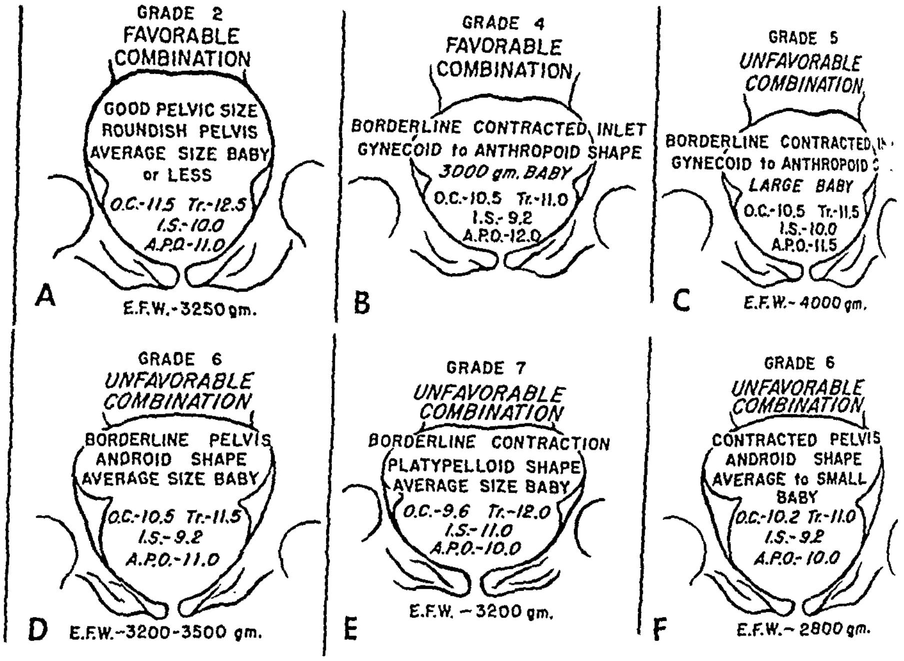
TABLE 4.—*Grading of Breeches in 247 Women Undergoing X-ray Pelvimetry*

	No. of Women in Grade								
	0	1	2	3	4	5	6	7	Total
Vaginal delivery	8	48	63	57	21	9	3	0	209
Primary section	1	2	1	5	5	9	2	1	26
Previous section	1	0	1	4	2	2	2	0	12
Total	10	50	65	66	28	20	7	1	247

The causes of the perinatal deaths were as foll nonpertinent anoxemia in 10 babies, congenital a alies in 3, trauma in 1 (grade 6), and intracr hemorrhage in one (grade 1). It appears reason with the fetal loss in grade 6 and the proved c of obstructive labor in grade 5 that levels higher t 4 could be dangerous to the infant if it is delive vaginally.

On this basis it is felt that patients graded 0 4 may be delivered vaginally; those graded 5 t should be delivered abdominally. There are two ceptions in the patients graded 4: (1) if the o ric conjugate is less than 10 cm. and (2) if the mated fetal weight is over 4,000 Gm. (9 lb.). T statistical data above do not prove that this sy of grading is valid. However, they may be suitab for practical use.

There are two other major considerations that not be weighted satisfactorally. One is the behav of the sacrum. If the sacrum has a good hollow a inclines posteriorly, one can expect little difficulty w the head. If the sacrum is straight and inclines fo ward, shortening the anteroposterior diameter of t outlet, then one can expect difficulty with extracti The second consideration is uterine inertia. Wh there is a combination of a suspect pelvis and inert regardless of the presentation, cesarean section is t better part of valor.



Examples of favorable and unfavorable combinations in breech presentat OC=obstetric conjugate, Tr.=transverse diameter of inlet, IS=interspinous diame and *APO=anterposterior diameter. A, pelvic size and shape grade 0 and estima* fetal weight (EFW) 1 to 3, depending on weight; total 1-3. *B*, pelvic size 3, pel shape 0, and *EFW 1; total 4. C, pelvic size 2, pelvic shape 0, EFW 3; total* 5. pelvic size 2, pelvic shape 2, EFW 2; total 6. *E*, pelvic size 3, pelvic shape 2, EF 2; total 7. *F*, pelvic size 3, pelvic shape 2, EFW 1; total 6.

mples of *Grading.*—The following examples may
ısidered to show some of the favorable combina-
(see figure).
\ pelvis of good size, with a roundish shape of
a gynecoid or slightly anthropoid type, and an
ge-size baby. One may not expect difficulty when
three factors are present in this form. This pa-
would have a grading of 1 to 3 depending on the
t's size (see figure, *A*).
A pelvis with a contracted inlet (Mengert's area
85%) with a gynecoid or anthropoid shape and
timated fetal weight of 3,000 Gm. Such a pelvis
have an obstetric conjugate of 10.5 cm., a trans-
diameter of the inlet of 11 cm., an interspinous
eter of 9.2 cm., and an anteroposterior diameter
e outlet of 12 cm. This patient would be graded
e figure, *B*).
e following combinations may be considered un-
able:
A borderline pelvis of any shape and a large
t. For example, an estimated fetal weight of 4,000
and a pelvis in which the inlet has an obstetric
ıgate of 10.5 cm., a transverse diameter of the
of 11.5 cm., an interspinous diameter of 10 cm.,
an anteroposterior diameter of the outlet of 11.5
would be graded 5 (see figure, *C*). Certainly a
)-Gm. infant would run the risk of major trauma
vaginal delivery.

2. A borderline pelvis of android shape, with an average-sized infant. For example, an obstetric conjugate of 10.5 cm., a transverse of the inlet of 11.5 cm. with a typical wedge-shaped pelvis with sharp spines in which the interspinous diameter is 9.2 cm., an anteroposterior diameter of 11 cm., and an estimated fetal weight of 3,200 to 3,500 Gm. would be graded 6 (see figure, *D*).
3. A bordeline contraction with a platypelloid shape of the pelvic inlet and an average-sized infant. For example, an obstetric conjugate of 9.6 cm., transverse diameter of the inlet of 12 cm., interspinous diameter of 11 cm., and an anteroposterior diameter of the outlet of 10 cm. with an estimated fetal weight of 3,200 Gm. would be graded 7 (see figure, *E*).
4. A contracted pelvis with an android shape and an average to small infant. For example, an obstetric conjugate of 10.2 cm., transverse diameter of the inlet of 11 cm., an interspinous diameter of 9.2 cm., and an anteroposterior diameter of the outlet of 10 cm. with an estimated fetal weight of 2,800 Gm. would be graded 6 (see figure, *F*).

Summary

Three variables affect the decision for the method of delivery when the presentation is a breech. They are pelvic size, pelvic shape, and estimated fetal weight. These variables have been weighted, allowing each patient to be graded for decision for vaginal or abdominal delivery.

TREATMENT OF OBESITY WITH PHENMETRAZINE HYDROCHLORIDE, A NEW ANOREXIANT

Charles Ressler, M.D., New York

By means of a double-blind procedure, 30 obese patients were tested to measure the effectiveness of a new anorexiant. The total weight lost and the average weight lost weekly by each patient were five times as great for those on therapy with the active drug as compared to those on therapy with a placebo. No special stress was placed on diet, although the elements of a well-balanced, 1,100-calorie regimen were explained. There were no unusual side-reactions, subjective complaints, or changes in physical findings to indicate toxicity of the drug.

henmetrazine hydrochloride is a new anorexiant.
s an oxazine derivative with sympathomimetic
)erties, and its reported action is suppression of
etite, with minimal cardiovascular and central
'ous system stimulation. In animal experiments[1]
lethal dose was about five times that of ampheta-
e, while the stimulative effect was about one-
ı. Clinical use was originated in Germany, where
ıeike[2] gave 50 patients a 25-mg. tablet twice daily
10 weeks and found that all patients lost weight
n average rate of 1.9 lb. (0.9 kg.) per week. In the
ted States, Gelvin, McGavack, and Kenigsberg[3]
orted on a study with a double-blind placebo con-

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om the Second (Cornell) Medical Division, Endocrine
c of Bellevue Hospital.

trol in which phenmetrazine produced an average weekly loss of 0.9 lb. (0.4 kg.) in the 45 patients. No significant toxic results were encountered.

Method

We were supplied with two identical tablets labeled tablet A and tablet B. One was phenmetrazine, 25 mg., and the other a placebo, but the governing code was known only to the manufacturer. As obese patients were referred to the endocrine clinic for weight reduction, we alternately placed one on a regimen of tablet A three times a day one-half hour before meals and the next on a regimen of tablet B three times a day one-half hour before meals, until 36 patients were included. This was done in routine manner, with no attempt at selection of cases. Regular histories were taken and physical examinations performed on each patient, with laboratory studies including urinalysis, complete blood cell count, serology, and in most cases determinations of blood cholesterol level and basal metabolic rate.

During the first interview the elements of a balanced 1,100-calorie regimen were explained orally, and from then on no special stress was placed on diet. Patients were seen at two-week intervals and careful records made of weight, pulse, blood pressure, and subjective complaints, while evidence of toxic effects was sought by general examination and reappraisal of urine, blood cell count, and basal metabolism. After each patient had been receiving one medicament or the other for about three months, the study was concluded, with 30 patients remaining—14 taking tablet A and 16 taking tablet B. We were then informed that A was phenmetrazine, 25 mg., and B the placebo.

Results

It was at once apparent that with phenmetrazine every patient lost weight. This was accomplished smoothly and consistently at an average weekly rate of 1.34 lb. (0.6 kg.) for the group. The average weight loss for all patients receiving phenmetrazine was 15.25 lb. (7 kg.). With the placebo, some patients lost and others gained, so that an average weight loss of 0.24 lb. (0.1 kg.) per week was obtained. The average weight loss for all patients receiving the placebo was 3.02 lb. (1.4 kg.) for the duration of the study; this provided a direct contrast to results with the active drug. Summaries of representative cases follow.

Case 3.—A 42-year-old male was given phenmetrazine. He had a 25-year history of grand mal seizures and marked obesity. His seizures were kept under control with use of diphenylhydantoin (Dilantin) and phenobarbital. He had been un
in many previous attempts to reduce. Physical
revealed an obese male 67 in. (170 cm.) tall and w
289 lb. (131 kg.). Blood pressure was 130/80 mm. H
rate was 76; urinalysis and complete blood cell co
normal; fasting blood sugar level was 140 mg. per 1
basal metabolic rate was +4%; uptake of radioactive
(I^{131}) was 39%; and an electrocardiogram showed o
ventricular premature contraction. The patient made n
plaints but between March 21 and April 4 administra
phenmetrazine was interrupted because irregularity of th
was noted and an electrocardiogram revealed the pre
ventricular premature contractions.

Table 1.—*Record of Weight, Pulse, and Blood Pressure for Patient in Case 3 over Period of Fifteen Weeks*

Date	Weight, Lb.	Pulse, Beats/Min.	Blood Pressure, Mm. Hg
3/ 7	289	76	130/80
3/21	283	72	120/80
4/ 4	282	84	130/90
4/18	272.5	84	135/95
5/16	266.5	80	135/95
6/ 6	259.5	72	120/80
6/20	256.75	72	120/80

Case 21.—A 55-year-old housewife was given placeb
had attended the clinic for many years and had a l
history of obesity, hypertension, and osteoarthritis. Sh
referred to endocrine clinic for weight reduction. P
examination revealed an obese female 62 in. (157 cm
and weighing 206.5 lb. (94 kg.). Blood pressure was 1
mm. Hg; pulse rate was 90; urinalysis and complete bloo
count were normal; blood cholesterol level was 160 m
100 cc.; I^{131} uptake was 25% and x-ray showed osteoar
of the spine and shoulders. With placebo there was no c
in the complaint picture. The patient had suffered fro
somnia for many years, and "reducing tablets" effecte
change.

Table 2.—*Record of Weight, Pulse, and Blood Pressu Patient in Case 21 over Period of Sixteen Weeks*

Date	Weight, Lb.	Pulse, Beats/Min.	Blood P Mm. H
2/ 1	206.5	90	[illegible]
2/29	203.75	72	[illegible]
3/14	206.25	96	[illegible]
4/ 4	207.25	80	[illegible]
4/25	210.25		
5/ 9	206		
5/23	203.25	72	[illegible]

Case 14.—A 33-year-old married female was given p
metrazine. She had a history of bronchial asthma and ob
was seen in surgery for furunculosis of the abdominal wall.
was referred to us for weight reduction. Physical
revealed an obese female 66 in. (168 cm.) tall and weig
197.25 lb. (90 kg.). Blood pressure was 118/90 mm.
pulse rate was 76; urinalysis and complete blood cell
were normal; basal metabolic rate was −10%; I^{131} uptake
49%; blood cholesterol level was 170 mg. per 100 cc.;
electrocardiogram was normal. There were also noted expir
changes in the chest; moderately enlarged, palpable, nod
thyroid; and healing furunculosis of the anterior part of
abdomen. The patient sustained two exacerbations of bron
asthma but made no specific complaints while receiving t
drug.

Table 3.—*Record of Weight, Pulse, and Blood Pressu Patient in Case 14 over Period of Sixteen Weeks*

Date	Weight, Lb.	Pulse, Beats/Min.	Blood Mm. H
1/18	197.25	76	118/9
1/25	184.75		
2/15	167	88	110/7
2/21	178		
5/10	168		

Case 15.—A 58-year-old woman was given placebo. She h
been attending the endocrine clinic for eight years, wi
diagnosis of obesity and menopause syndrome. She still c
plains of hot flushes and dizzy spells, but is subject to m
domestic difficulties leading to worry, anxiety, and insom
The patient says that she must eat when she is nervous. Ph
cal examination revealed an obese female weighing 180.25

g.). Blood pressure was 150/90 mm. Hg and pulse rate 4. There was no change in the pattern of complaints treatment and no change in insomnia.

4.—*Record of Weight, Pulse, and Blood Pressure for Patient in Case 15 over Period of Fourteen Weeks*

Date	Weight, Lb	Pulse, Beats/Min	Blood Pressure, Mm Hg
	180.25	84	150/90
	182.75		
	180.50	76	160/88
	182.25		
	184.25	76	180/100
	182.25	80	150/82

Comment

ne four cases cited illustrate the marked difference esponse between phenmetrazine and the placebo. patient in case 3, who was receiving tablet A, was n off therapy with the drug for a few days because entricular premature contractions, but this was esumably not due to toxicity, because use of phenetrazine was resumed without untoward incident. The other three cases were selected for review beuse each patient presented a multitude of somatic mplaints before, during, and after completion of the dy; but the complaint patterns were completely unaffected by the medication. The patient receiving phenmetrazine, however, lost a good deal of weight, while the controls did not. A statistical summary of the study is given in table 5.

LE 5.—*Summary of Clinical Study in Treatment of Obesity*

Age, Yr	Sex	Blood Pressure, Mm Hg	Pulse, Beats/Min	No of Wk Treated	Original Wt., Lb	Final Wt., Lb	Total No of Lb Lost	No of Lb Lost/Wk	Side-effects
				Phenmetrazine					
62	F	165/95	72	16	195	185.25	9.75	0.61	None
50	M	200/110	82	5	351	309.5	41.5	8.30	None
42	M	130/80	76	15	289	256.75	32.25	1.97	Irreg pulse
45	F	100/70	76	14	197	185.75	11.25	0.80	Insomnia
56	F	160/110	84	16	238.75	227.25	11.5	0.72	None
48	F	170/110	80	16	189.5	176	13.5	0.84	None
54	F	175/95	64	4	179.25	170.25	9	2.25	Nervousness
58	F	160/90	64	3	185.75	177.5	8.5	2.83	Dry mouth
65	F	190/80	60	16	209.25	196	13.75	0.86	None
42	F	150/100	80	15	180	168.75	11.25	0.75	None
55	F	130/85	72	4	153	148.25	3.5	0.88	Dizziness
49	F	150/90	70	6	318	304	14	2.33	None
50	F	165/100	72	13	209.5	202.25	7.25	0.56	None
33	F	118/90	76	16	197.25	168	29.25	1.83	None
				Placebo					
58	F	150/90	84	19	180.25	182.5	+2*	+0.29*	Insomnia
52	F	150/70	72	17	143.75	141	2.75	0.16	None
36	F	120/80	72	12	175.25	169.25	6	0.50	None
58	F	180/100	68	11	187.25	185.5	3	0.27	None
37	F	120/90	72	4	236.75	236	.75	0.19	None
48	F	125/90	64	16	188.75	181.25	7.5	0.47	None
55	F	180/110	90	16	206.5	203.25	3.25	0.20	None
65	F	180/114	72	17	189.5	174	15.5	0.90	None
43	F	160/120	100	15	177	186	+9*	+0.60*	None
47	F	120/80	84	14	161	159	2	0.14	Indigestion
37	F	120/70	72	15	181.75	174.75	7	0.47	None
39	M	175/110	96	13	257.25	265	+7.75*	+0.60*	None
50	F	120/90	88	9	161.75	159.75	2	0.22	None
49	F	170/95	80	8	218	211.5	6.5	0.81	None
40	F	110/80	64	4	189.75	185	4.75	1.19	None
65	F	140/76	72	16	197.75	189.75	8	0.50	None

Patient gained weight

It is interesting to note that over one-half of the obese patients had diastolic hypertension. Nevertheless, there seemed to be no adverse effect from the drug. Each patient was examined and questioned carefully on revisits at two-week intervals. Blood pressures and pulse rates did not vary, and surprisingly few subjective side-effects were elicited. One patient receiving tablet A felt that her previous degree of insomnia became more severe, but a similar complaint was made by a patient taking tablet B. Nervousness, dry mouth, and dizziness, all of mild degree, were reported with tablet A, while one patient receiving tablet B developed indigestion.

Not included in this study, since there were no controls, were 20 patients treated with phenmetrazine in private practice. In almost every instance a marked anorexiant effect was noted, and side-effects were minimal. Only one patient felt a nonspecific sense of nervousness and discontinued use of the drug. Occasionally a complaint of dryness of the mouth and also a story of headache during the first day or two of therapy were encountered.

TABLE 6.—*Analysis of Findings in Two Groups of Patients Treated for Obesity*

	Tablet A (Phenmetrazine)	Tablet B (Placebo)
No of patients	14	16
Distribution by sex	2 male; 12 female	1 male; 15 female
Av. age, yr	50.6	48.6
Total no of wk of dieting	159	206
Av. no of wk of dieting	11.4	12.6
Total weight loss, lb	216.25	50.25
Av weight loss, lb	15.25	3.02
Av. weight loss per wk,* lb	1.34	0.24
(Standard error of av)	(0.343)	(0.113)
Incidence of side-effects	4	2

* Average weekly weight loss for the phenmetrazine group was statistically significant at the 1% level For placebo group, it was of borderline significance at the 5% level The difference was also statistically significant at the 1% level

An analysis of the results of the clinical study is given in table 6. The total amount of weight lost by each patient and the average weekly weight loss were five times as great with phenmetrazine as with the placebo. Illustrating the effectiveness of phenmetrazine as an anorexiant, the average weight loss was 1.34 lb. per week, as compared with 0.24 lb. with the placebo.

Summary

Clinical investigation of a new anorexiant, phenmetrazine hydrochloride, was conducted in our endocrine clinic by means of a double-blind procedure. Thirty obese patients were treated with either tablet A or tablet B, with no special stress placed on diet. After three months the study was concluded and we were told that tablet A was phenmetrazine, 25 mg., and tablet B a placebo.

Patients who received phenmetrazine lost an average of 15.25 lb. (7 kg.) each, at a rate of 1.34 lb. (0.6 kg.) per week. Patients who received the placebo lost an average of 3.02 lb. (1.4 kg.) each, at a rate of 0.24 lb. (0.1 kg.) per week. Incidence of side-reactions and subjective complaints was negligible, and examination, including pulse, blood pressure, blood cell count, and urinalysis, showed no signs of toxicity. Phenmetrazine hydrochloride was found to be an effective and seemingly harmless anorexiant for routine therapy in obese patients.

625 Park Ave. (21).

The phenmetrazine used in this study was supplied
ludin by Geigy Pharmaceuticals, Division of Geigy Ch
Corporation, Yonkers, N. Y.

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OBSTETRICIAN'S ROLE IN POSTPARTUM MENTAL ILLNESS

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One hundred patients with postpartum mental illness were compared with a group of 100 female patients, matched for age and year of admission, who had been admitted to the same institution for mental illness not associated with childbirth. No significant difference in symptomatology was found. Postpartum mental illnesses are not a psychiatric entity; the term should be understood to refer simply to the usual psychiatric disorders but in the setting of childbirth. Current beliefs regarding etiology were found to need correction. The illness was not especially associated with first pregnancies; almost half of the patients had experienced childbirth before without recognizable mental illness. Among the most frequent precipitating factors were unstable marriages, long-standing maladjustment of the patient herself, immaturity of the patient, unstable family history of the patient, and the creation of new financial and other strains by the birth of the baby. The same factors were found important in determining the prognosis. The obstetrician's role includes early recognition of symptoms, use of nursing precautions to prevent suicidal and homicidal attempts, and use of a prognostic guide described by the authors. Textbooks of obstetrics need revision in the light of new facts about postpartum mental illness.

The results to be presented here derive from a recent study[1] of 100 consecutive patients with postpartum mental illness, admitted to the New York Hospital-Westchester Division between 1944 and 1952. Our purpose was an exploratory one, to discover what we could about the present nature of this reaction by comparing these patients with a control group consisting of 100 female patients admitted to this same hospital, matched for age and year of admission, but whose mental illness was not associated with childbirth. In presenting our data, we will compare them with a survey of this subject as given in current obstetrics textbooks[2] so as to provide the practicing obstetrician and future students with a summary of the present knowledge of this reaction and in the hope that future textbooks may correct certain impressions that seem to us to be out of date, inaccurate, or confusing.

The term "postpartum mental illness" was broadly conceived in our study to mean any mental illness in which childbirth was thought to be a major precipitating factor. "Postpartum" actually includes antepartum reactions, and the term is used solely because it is the common one.

A word, first, about the research to date regarding this reaction. There have been a number of studies (see references cited in our earlier article[1]), usually clinical reviews of cases, which have often reflected the special nature of the sample studied. Few investi-

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gators[3] have employed any type of control group for evaluating the significance or results. Many of the points of disagreement found in both the reported research and in the textbooks may be due to generalizations from small and possibly biased samples. An example of this is Zilboorg's paper,[4] which stressed certain analytic interpretations and which has influenced the presentations in some textbooks. The careful reader finds it difficult to determine the exact nature of the populations studied or how these cases were selected, so any generalizations based upon so few patients, especially if they were all schizophrenic, would be questionable.

Definition

The obstetrics textbooks use confusing terminology in referring to mental illness associated with childbearing, such as puerperal insanity; gestational psychosis; confusional insanity; insanity of pregnancy, of labor, of puerperium, and of lactation; psychosis in pregnancy; toxic and infectious exhaustive psychosis; and postpartum psychosis.

One of the major reasons for confusing terminology has been the changing theories of causality. In the past, many of the postpartum mental illnesses were probably related to toxic, infectious, and exhaustive factors inherent in the medical problems of those times. With improved medical care, such conditions are increasingly rare. There has also been a trend away from organic diagnoses as psychiatry has come to recognize functional elements. Most recent authors agree that toxic, infectious, and exhaustive factors play a smaller and smaller role in the postpartum reactions. In an earlier study[5] at this same hospital of patients admitted between 1911 and 1923, 11 of the 72 patients studied had diagnoses of delirium. In our present study, none of the 100 patients had an organic diagnosis, which reflects the decreasing role of organic reactions.

We recommend dropping terms such as puerperal insanity, confusional insanity, and toxic psychosis from future textbooks and limiting ourselves to the term "postpartum mental illness," since it is the current psychiatric term, or else to "gestational mental illness." Either term is free of organic implications, of the undesirable term "insanity," and of the implication that only a psychosis can occur.

Incidence

Depending upon the text one reads, the incidence of postpartum mental illness ranges from one in 400 to one in 1,000 pregnancies. The incidence of mental illness in all pregnancies is probably impossible to compute accurately, because there is no one reliable observer present throughout the entire period of possible onset. Hospital statistics and incidences reported by obstetricians are probably low, since many of these illnesses occur after the last obstetric contact, assuming that to be usually six weeks after delivery. In our present study 89 patients had no recognizable symptoms until after delivery. Of these 89, 55 showed symptoms within six weeks, but 34 showed symptoms well after six weeks of delivery. Let us assume that the 55 would be known to their obstetricians; this leaves 34 of the 100 patients studied who developed symptoms well after the last regular contact with their obstetrician. This means that as many as one-third of all such cases may be overlooked by obstetric sources, suggesting that any estimated incidence would need to be corrected to approximately one in 300 up to one in 750. Even this estimate may miss patients who do not receive psychiatric attention, who are not hospitalized, and who are in no way known to persons who compile such estimates. We recommend that any figures of incidence given in a text or lecture be treated as the vaguest of estimates until such time as reporting is more reliable.

As for the number of women with postpartum mental illness compared to all female patients admitted to a psychiatric hospital, there is a similar confusion. Rates cited in the textbooks reviewed were 2%, 5%, and 10% of all females admitted because of mental disease. Figures will differ depending on how one defines the postpartum illness. In our recent study, our definition was as broad as was reasonably possible, so the 5.3% obtained for women with this illness compared to all females admitted to this hospital during the same time interval could be considered the upper limit for such percentages.

The whole question of incidence needs to be clarified. Let us assume that the age span in women for a functional mental illness requiring hospitalization is roughly from 16 to 60 years, which is a span of 44 possible years. Let us further assume that the average number of children born per mother was roughly 3.7 children in 1950 for the population as a whole. We will allow 9 months of pregnancy and six weeks post partum for each child, which means that each woman spent, in those 44 years, about 39 months directly involved in the act of childbearing. What are the chances for any mental illness occurring during these childbearing months? If we divide 44 years into 39 months, we get about 7%, which would be the incidence simply by chance alone, with no causal relationship implied. It seems to us that 7% is a generous estimate of the expected incidence among females admitted for psychiatric reasons. Again, we caution future authors from placing reliance upon any such figures because of problems in definition and because of the varying admission policies of psychiatric installations. With the current trend toward increased outpatient psychiatric care and the use of tranquilizing drugs, these figures may change.

Etiology

According to the textbooks, the etiology of these illnesses includes faulty elimination, insomnia, toxemia, illegitimate pregnancy, poor heredity, unstable premorbid personality, frigidity, homosexuality, sepsis, fear of responsibility of motherhood, a first pregnancy, unknown organic factors, masturbation, financial worries, a male child, disappointment in the sex of the child, and previous mental illness.

Our present knowledge of the etiology of the postpartum mental illnesses is similar to our knowledge of most other mental illnesses. There are four general types of explanations: organic factors, heredity, personality predisposition, and environmental influences. It seems reasonably well accepted now that organic factors derived from childbirth itself have a relatively minor influence.[6]

We can report no specific cause for the postpartum mental illnesses that emerged from our study of 100 such patients. There would seem to be as many different constellations of contributing factors as there are patients studied. But approximately 30% of these postpartum patients had had a previous attack of mental illness. This is almost exactly the same percentage found in the control group. In other words, the postpartum patient is like any other female patient of the same age admitted to this hospital in respect to previous mental instability. Approximately the same percentage, 20% to 30%, of both groups had also had a previous admission to a mental hospital. Tetlow's recent findings [3b] are in agreement on this point.

As for the sex of the child, our study did not demonstrate this as a factor. Only 11 of our 100 patients reported disappointment in the sex of the child. Since 48 of the infants born were male, 51 were female, and one was stillborn (sex not given), there would seem to be no encouragement for believing that the sex of the child is an etiological factor.

Some authors have felt this illness is primarily associated with first pregnancies. It seems to us that this partially a result of a statistical misunderstanding. bviously there are more first-born persons in the population than of any other sibling rank. One should expect the incidence of all these illnesses to decrease with the birth rank of all children, since the actual number of such pregnancies must also decrease with the rank of the child born. In our study, 57 patients reacted to their first-born, 26 to their second, 13 to their third, and 4 to their fourth child. It is difficult to obtain figures for a comparable normal population in order to test the significance of this frequency, although Vislie [3c] made such a comparison and concluded that women going through their first pregnancies were more susceptible. What was significant, perhaps, in our study was that almost one-half of the patients reacted to a later child rather than to their first child. Almost half had experienced childbirth at least once without a recognizable mental illness. It would not be wise to infer that this illness does not occur after one stable pregnancy, but it is possible that the illness occurs more often in first pregnancies. The obstetrician might remember that almost one-half of these illnesses which he will see will occur in multiparas.

As for physical complications which might have caused undue stress, a review of these 100 histories failed to reveal unusually difficult pregnancies or deliveries, as reported by the attending obstetrician or by the patient's family. Tetlow's controlled study [3b] of 67 patients also showed no significant frequency of physical complications.

In the psychiatric literature, reference has been made to the frequency of this illness among patients of Jewish background. This seems to be another statistical mishap. One must compare these patients to a matched control group from the same hospital, since the population of a hospital may reflect ethnic patterns of its area. When we made such a comparison, no significant incidence was found for any one religious group. Abnormal sexual behavior, such as frigidity, homosexuality, or masturbation, was not outstanding in our group nor in Anderson's.[3a]

The precipitating factors which impressed us in our group of patients were these, in order of frequency: (1) unstable marriage; (2) long-standing maladjustment of the patient herself; (3) immaturity of the patient; (4) unstable family history of the patient; (5) birth of the baby creating considerable extra responsibility upon the patient, particularly financial; (6) baby not wanted by wife or her husband; (7) physical illness of mother or the baby, including extreme fatigue in caring for a sick baby; (8) unfavorable situation at home after delivery, such as poor living conditions, in-law friction, death of a relative, or husband losing his job; and (9) traumatic situations, such as the suicide of a relative or witnessing a tragic death. There were additional factors that were hard to classify, such as a fearful reaction to childbirth based on ignorance, or low mentality.

It seems to us as well as to others [7] that what precipitates such an illness can be a combination of many things, rather than one simple factor. There is the patient's basic stability, the stability of the marriage itself, the setting into which the baby is born, plus a combination of circumstances to which the patient might have been especially vulnerable. The arrival of a child into such circumstances can set off complicated reactions in the total life situation which are due not to the symbolism of childbirth as much as to a difficult life situation faced by a somewhat unstable person.

We have, it will be noted, referred to "precipitating factors" rather than to etiological factors. This is due to our reluctance to posit causal factors without the assurance that we are correct. The cause or origin of a disease is something we need to have correct, particularly when we are educating future physicians.

Onset

Some texts say symptoms often occur in the first trimester, still others say not until after delivery. Some say that depressions begin during pregnancy, whereas schizophrenic reactions appear during pregnancy and labor; the onset may be slow or sudden. If the onset follows delivery, some say this happens in the 10th to 14th day, some say the 1st to 14th day, and some say up to the end of the second year.

The data from our study support few of these statements. Only 11 of our 100 patients showed recognizable symptoms during pregnancy, these occurring on the average between the fourth and fifth months, but an average is of little value with so small a number. The remaining 89 showed symptoms after delivery, which suggests that this is when the bulk of reactions are to be expected.[8] Of these 89 reactions, 55 had their onset within six weeks of delivery, with a mean onset of two and one half weeks. (Only 21 of these patients showed symptoms within the first week, when presumably they were still in a general hospital. This means that only about 20% of these reactions would be seen today while a patient was in the hospital or on an obstetrics service.) As was stated earlier, the balance, 34 patients, had their onset after six weeks, with an average of some four months after delivery. This average was not distorted by a few extreme cases. This suggests that one in three cases of postpartum disease, as defined here, had its onset well after the patient's last regular obstetric contact.

Two questions remain about onset: first, is there a typical time of onset for any one type of illness, and, second, is time of onset related to prognosis? Our data indicate that most of the psychoneurotic and manic-depressive disorders occur after delivery, about half of these within six weeks and half later. The schizophrenic patients, as a group, tended to have a more sudden onset after delivery, but the interval ranged up to 10 months. In our follow-up study, we found that the schizophrenic patients, as a group, did less well than either the psychoneurotics or manic-depressives, so we infer that a sudden onset after delivery is not related to a good prognosis.

Symptoms

The symptoms described in the textbooks cover almost everything, and even for someone familiar with mental disorders it would be most difficult to recognize an illness from such descriptions. The symptoms are said to include insomnia, irritability, anxiety, depression, delusions, neurotic symptoms, excitement, hallucinations, hostility, homicidal threats, suicidal attempts, restlessness, mood swings, and suspicion. These might describe the symptoms of the population of any psychiatric hospital.

It seems to us that the whole topic of symptoms is closely related to a discussion of diagnoses, unless one believes that the postpartum mental illnesses are a diagnostic entity in themselves. One of the major findings of our research has been that the postpartum mental illnesses are not a psychiatric entity; childbearing is no different from any other situation to which people can react with mental disorders.[9] To every major change in life, such as adolescence, marriage, childbirth, promotion, or aging, there are some people who react abnormally. To us, postpartum mental illness is merely a term to refer to the illness of those patients who develop the usual psychiatric disorders, but in the setting of childbirth. A cause-and-effect relationship between childbirth and mental illness is not implied,[3a] only a temporal relationship. The symptoms of these illnesses therefore should be discussed in connection with the types of disorders that occur.

Types of Disorders

One finds a multitude of types of disorders described in the textbooks, depending upon the author's theoretical point of view and upon the adequacy of his review of previous research. There are those who stress depressions, confusional states, or schizophrenia. Some type the reaction according to its time of onset.

This topic would be clarified greatly if the textbooks referred to research in which the types of postpartum disorders have been found to be quite like those occurring in psychiatric patients of the same age and sex.[10] In our study, we compared the diagnoses of the 100 postpartum patients with those of our control group. There were no significant statistical differences between these two groups in the frequency of psychoneurosis, schizophrenia, or manic-depressive illnesses. The significant point would be that the major mental disorders of this age group of women occur with the same distribution in the postpartum setting as they do in any other setting.

If we accept this finding, then any description of types of illnesses and their symptoms should follow the descriptions of these disorders given in any up-to-date psychiatric textbook. The future obstetrician would be well advised to recognize the symptoms of the major functional disorders as they are currently taught in psychiatry. Psychiatric consultation might be a helpful step for the practicing obstetrician whenever there is any question as to the nature or severity of the reaction.

Considerable emphasis has been placed in the textbooks upon suicidal and homicidal risks among these patients. Current research, including our own and Vislie's,[3c] would support the idea that suicide is a sufficiently common risk to alert the obstetrician that close nursing observation and safety precautions for these patients are a wise move, at least until such time as the patient is under psychiatric treatment or sufficiently improved.

The homicidal risk is another matter. Many postpartum patients express hostility toward their newborn infants, and often toward their husbands, but evidence is scanty regarding the frequency of infanticidal attempts. We cannot report a homicidal attempt in any of our 100 patients, nor did Anderson[3a] or Vislie.[3c] It may be that, with earlier recognition and treatment of these patients, the opportunity has been decreased. In planning nursing care, precautions against hostile acts should be observed. If a patient is so disturbed as to threaten homicide, it seems reasonable to expect that the physician will have already sought psychiatric consultation.

Treatment

The topic of treatment is usually cited briefly in the textbooks except for advice as to the use of electroshock treatment and hospitalization as indicated. Usually psychiatric consultation is suggested. The subject of early detection might profit from amplification, but this depends in turn upon the author's familiarity with the psychiatric disorders and their symptoms. The obstetrician needs to be aware that postpartum mental illnesses can take the form of any functional mental illness and that therefore any symptom can have significance, from tension, depression, and insomnia to flagrant hallucinations. Reassurance by the obstetrician, as long as it is successful, is the treatment most often suggested in the textbooks. We would argue for increased emphasis upon early detection and careful observation.

In discussing treatment, since the patients in our study were all hospitalized, we must limit ourselves to psychiatric hospital treatment. These 100 patients spent an average of seven months in this hospital, which was a significantly shorter hospitalization than for the controls. Some received electroshock treatment, but all received psychotherapy as well as program therapies. There was no unique plan of psychiatric treatment that differentiated them from other patients. However, one-third of these postpartum patients left the hospital against advice, prior to the time the hospital staff felt that a good level of recovery had been reached. This was a significantly greater amount than in our controls. Those who left the hospital against advice stayed an average of 4.4 months, some 3 months less than the total postpartum group. This raises the question: Does leaving the hospital against advice, prior to the conclusion of treatment, affect the patient's chance of recovery? In our study, it did. Those who left the hospital too soon had a significantly lower level of adustment upon follow-up than did those who left with the staff's approval. This may be due to the shorter hospitalization or possibly to the pressures within a family situation which caused the patient to leave as she did.

To date, our knowledge of treatment for these mental disorders is like that for other mental disorders. No specific treatment is yet known. Psychiatric hospital treatment includes psychotherapy, planned activities, and good nursing care. Electroshock treatment follows the indications found in any other patient. (Tranquilizing drugs had not been in use at the time our patient group was studied.)

Prognosis

In discussing prognosis, we will omit the organically induced disorders, which we think to be infrequent these days, and concern ourselves only with the functional disorders. The textbooks vary considerably regarding the prognosis for individual types of illness, but most authors feel the over-all prognosis is good, a point with which we agree wholeheartedly.

The follow-up study of our 100 patients was carefully done, with detailed information obtained on 9 of the 100 patients. The follow-up period following hospitalization ranged from one to nine years, averaging four years. The details of this study are published elsewhere,[1] so only the final results will be give here. Seventy-two of these patients had achieve a reasonable level of adjustment some four years aft hospitalization; of these, 57 were apparently reco ered. The balance were making a marginal adjus ment, were still in treatment, or were in a ment hospital. One could restate this to say that three o of four made a reasonably good recovery and thr out of five were fully recovered. From what w know of similar hospitalized groups, this can be co sidered a good recovery rate.

The types of disorders varied in their prognos The manic-depressive and psychoneurotic groups d somewhat better than the schizophrenic group, whi is consistent with our present knowledge of the illnesses. But one must be cautious of group averag because many individual schizophrenic patients d extremely well and also because diagnosis itself is t variable to put much faith in prognosis based upon Our data do not substantiate the opinion that t later the onset the worse the prognosis or the mo excited and confused the patient the better the pro nosis.

Many workers in the mental health field look f reliable prognostic signs, and we were no exceptio Our data indicate a quick rule of thumb for progno which seems to be reasonably accurate. When an o stetrician has a patient who is to be hospitalized f a postpartum mental illness, a good psychiatric histo is his most reliable guide. We would ask him to revie the psychiatric history for the following major poin (stated briefly): (1) long-standing maladjustment the patient, (2) family history of mental illness, (psychological immaturity of the patient, and (4) u stable marriage.

If the obstetrician finds none or only one of the four factors, then he can feel quite confident abo the ultimate prognosis after psychiatric hospitaliz tion. Of the 31 patients in our study who showed non or only one of these factors, 28 made an excellen recovery and the remaining 3 made a fair recovery. In other words, 9 out of 10 such patients who had none or one of these factors made an excellent recov-

y. There was considerable variability in the recovery
tes of patients with two or more factors, making
ediction based upon the presence of two or more
ctors not reliable. The advantage of this prognostic
ıle of thumb is that it is based on data available at
ıe time of onset, allowing the obstetrician to guide
ıe patient's family as to the future outlook when the
atient's illness has just begun.

As for future pregnancies, most authors are pessi-
ıistic because of the possibility of further mental
lness. Some speak of therapeutic abortion for this
eason. We do not share this degree of pessimism,
nd similar optimistic figures regarding both prognosis
nd future pregnancies have been found recently by
Madden and others.[11] There were 27 subsequent preg-
ıancies among 22 of our patients, and only 3 patients
eacted with a recurrence of their mental illness. From
his small sample, one might infer that the chances
are that one in seven patients will experience mental
illness associated with a subsequent pregnancy. Of
course, there may have been some patients who avoided pregnancy for mental health reasons, so such figures are only the roughest of estimates. In the group studied in Norway,[3c] several abortions were performed, but of those women bearing children, 12 of 15 had no untoward mental reaction. The patients who aborted may have been poorer mental risks. It would seem however that the risk of recurrence is not so great as to preclude future pregnancies.

Summary

A study of 100 patients with postpartum mental illness and their control group, and a review of the recent literature, would suggest to the obstetrician the following points of current information: 1. The postpartum or gestational mental illnesses are not a psychiatric entity in themselves but instead are the typical functional mental illnesses found in women of this age. 2. The relation between childbirth itself and mental illness is not thought to be causal, nor is any one etiological factor demonstrated. 3. The birth of a child is thought to be a final precipitating factor in a somewhat unstable person facing a total life situation to which she may be vulnerable. 4. Although first pregnancies may be frequently associated with postpartum mental illnesses, approximately one-half of all such patients seen by the obstetrician may be multiparas. 5. The onset is most likely to follow delivery, with one-third showing symptoms some four months after delivery, well after their last regular obstetric contact. 6. The incidence of these reactions in all pregnancies is reestimated to be from one in 300 to one in 750, whereas the incidence among all female psychiatric admissions is reestimated to be from 5 to 7%. 7. The prognosis for these disorders, following hospitalization, is good.

The obstetrician's role in these disorders might include (1) early recognition of psychiatric symptoms, which will be those typically found in any of the major functional disorders; (2) after recognition, initiation of careful nursing precautions against suicidal and homicidal attempts until psychiatric consultation is obtained; (3) an estimate of a patient's recovery after hospitalization by use of a brief prognostic guide; (4) the recommendation to the patient and her family not to terminate hospitalization against the staff's advice, since this has been associated with a poorer prognosis; and (5) diminished pessimism that future pregnancies are associated with further mental illness.

The authors of obstetrics textbooks should clarify the presentation of postpartum mental illnesses in future editions.

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PREANESTHETIC USE OF ATROPINE AND SCOPOLAMINE IN PATIENTS WITH GLAUCOMA

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In patients with glaucoma some confusion exists regarding the parenteral use of atropine and scopolamine as preanesthetic medication for nonocular surgery. This study suggests that there is no danger in using the belladonna drugs intramuscularly for preoperative medication. A single dose of atropine sulfate (up to 0.6 mg.) and scopolamine hydrobromide (up to 0.6 mg.) may be used. Pilocarpine hydrochloride (1 to 2%) or physostigmine salicylate (0.25% to 1%) should be instilled into the conjunctival sac to produce miosis to counteract the potential mydriatic effect of the belladonna drugs and the anesthetic agents.

Proper preanesthetic medication before general anesthesia includes the parenteral use of a belladonna drug such as atropine or scopolamine. These drugs diminish salivation and tracheobronchial secretions during the induction and maintenance of general anesthesia. In patients with glaucoma, some confusion exists regarding the parenteral use of atropine and scopolamine when an operation unrelated to the eye is necessary. Most of the data in the literature are concerned only with the ophthalmic effects of locally and orally administered belladonna drugs.[1] It is necessary to know with certainty the effects of these drugs upon the eye when administered by injection to glaucomatous patients. It is unreasonable to continue to apply incomplete and inconclusive evidence[2] which has resulted in improper preparation of the patient with glaucoma for surgical treatment of other parts of the body.

Therefore, a study was undertaken to determine the ocular effects of atropine and scopolamine, administered intramuscularly (in doses of 0.4 to 1.0 mg.) to patients with acute and chronic glaucoma. The effects of these drugs on the intraocular pressure and pupillary size changes were measured and compared.

Method

Fourteen patients were studied, eight with chronic simple (open-angle) glaucoma and six with acute (angle-closure) glaucoma. The patients with acute glaucoma were in a state of remission, and five had been treated previously with unilateral iridectomy. Local miotic therapy was stopped, and no medication of any kind was permitted during the 48 hours prior to the study. Two drops of 0.5% tetracaine hydrochloride, which does not influence pupillary size, were instilled into each eye for corneal anesthesia. The intraocular pressures were measured with a Schiøtz tonometer.

Four patients with chronic simple glaucoma and three with acute glaucoma were given atropine sulfate (0.5 to 0.6 mg.), intramuscularly, and the same number in each group were injected intramuscularly with scopolamine hydrobromide (0.4 to 1.0 mg.). The intraocular tensions were measured at 20-to-30-minute intervals for two hours. The average and the range of these measurements for each patient appear in tables 1 and 2.

In 10 subjects the diameter of the pupil was also measured with a millimeter ruler. In five of these subjects both eyes were studied. In the other five it was only possible to measure one eye, since the other eye had had an iridectomy. Therefore, a total of 15 eyes were studied.

Results

Chronic Simple Glaucoma—Atropine (Table 1).—There were no changes or a fall in intraocular tension in seven eyes after the injection of atropine. Only in one eye (left eye, subject 3) was there a rise, and that was a maximum of 3 mm. Hg. Subject 1, during one measurement, exhibited a decline of 8.6 mm. Hg in the left eye.

Chronic Simple Glaucoma—Scopolamine (Table 1).—There was no change in intraocular pressure in four eyes after scopolamine. In two eyes (left eye [O. S.], subject 5; right eye [O. D.], subject 6) there were small rises. These changes appeared to be of no importance to the welfare of the eyes. Subject 8 was not included in the compilation of the averages because the dose of 1 mg. of scopolamine is greater than that usually used for preanesthetic medication. This patient exhibited a significant fall in intraocular pressure, the pressure at one point falling 9.8 mm. Hg. This may have been the result of the sedative effect of a relatively large dose of scopolamine.

Acute Glaucoma—Atropine or Scopolamine (Table 2).—There were no significant differences in intraocular pressure in patients with acute glaucoma after the injection of atropine or scopolamine. There was a fall

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tension in 10 eyes and small rises in tension in 2). S., subject 10; O. D., subject 12). The falls in traocular pressure were more frequent and on the erage greater in the patients with acute glaucoma an in those with chronic simple glaucoma following e injection of therapeutic doses of the belladonna rugs. However, in neither group was there a single gnificant rise. Eleven of the 15 eyes in which upillary sizes were measured exhibited slight mydatic changes ranging up to 1 mm. in diameter and veraging 0.5 mm. Four pupils did not change at all.

ABLE 1.—*Changes in Intraocular Pressures Following Intramuscular Injection of Atropine Sulfate and Scopolamine Hydrobromide in Subjects with Chronic Simple Glaucoma*

Subject No.	Dose, Mg.	Tension, Mm. Hg: Before Drug (P)		Av. for 2 Hr. After Drug (A)		Av. Change (A-P*)		Range During 2-Hr. Period of Measurement	
		OD	OS	OD	OS	OD	OS	OD	OS
		Atropine							
1	0.5	61.3	65.7	59.2	61.4	—2.1	—4.3	57.1-61.3	57.1-65.7
2	0.5	39.8	31.8	39.8	31.8	0	0	39.8†	31.8†
3	0.5	29.5	39.8	29.5	41.3	0	+1.5	29.5†	39.8-42.8
4	0.5	31.8	39.8	31.8	38.3	0	—1.5	31.8†	36.9-39.8
		Scopolamine							
5	0.5	36.9	29.5	36.9	30.7	0	+1.2	36.9†	29.5-31.8
6	0.5	53.3	31.8	55.2	31.8	+1.9	0	53.3-57.1	31.8†
7	0.6	36.9	39.7	36.9	39.7	0	0	36.9†	39.7†
8‡	1.0	36.9	53.3	28.4	45.3	—8.5	—8.0	27.4-29.5	43.5-46.5

* Total average: for atropine, —0.8 mm. Hg; for scopolamine, +0.5 mm. Hg.

† Multiple measurements with no tension change.

‡ Not included in compilation of averages (see text).

Comment

Glaucoma is manifested by a rise in the intraocular pressure above normal levels. In the acute type this condition is aggravated by a dilated pupil, which permits the iris to interfere further with the outflow of aqueous humor at the canal of Schlemm.[3] Atropine or scopolamine instilled into the conjunctival sac are classic mydriatic drugs [1a] and are to be avoided in patients with glaucoma. Acute attacks of glaucoma have also been reported from the oral use of large doses of belladonna in the treatment of gastrointestinal disturbances.[1b] However, only one case can be found in the literature where preanesthetic injection of atropine in reasonable dosage may have contributed to the erroneous belief that parenterally given atropine and scopolamine are contraindicated for preanesthetic medication in patients with glaucoma.[2]

This study strongly suggests that there is no danger in using the belladonna drugs intramuscularly in the doses studied in patients with glaucoma who are being prepared for nonocular surgery. It does not suggest in any way that appropriate medical therapy for the glaucomatous patient can be abandoned. Pilocarpine hydrochloride (1% to 2%) or physostigmine salicylate (0.25% to 1%) instilled into the conjunctival sac should be given to produce miosis.[4] They also counteract the potential mydriatic effect of the belladonna drugs and the anesthetic agents.[4] Since a patient with glaucoma usually is treated with one of these drugs, preoperative and postoperative use of the same preparation can be continued.

Intramuscular doses of morphine sulfate (up to 15 mg.) cause constriction of the pupil as well as a fall in the intraocular pressure.[5] Barbiturates (given orally or parenterally) also lower the intraocular tension in patients with glaucoma.[6] The use of these drugs may therefore be incorporated in the preanesthetic medication if not contraindicated for nonocular reasons.

Summary

The effects on intraocular tension produced by the intramuscular injection of therapeutic doses of atropine sulfate and scopolamine hydrobromide were studied in 14 subjects (28 eyes) with acute and chronic simple glaucoma. Both drugs produced small rises in tension in only 5 of the 28 eyes. These increases are insignificant. Twenty-three eyes exhibited either no change or a fall in the intraocular pressure. Slight mydriatic changes were noted in 11 of the 15 pupils measured. The pupil never increased in diameter by more than 1 mm.

The safety of a single dose of parenterally given belladonna drugs for preoperative medication in glaucomatous patients was clearly established. The maintenance of topical instillations of pilocarpine hydrochloride (1% to 2%) or physostigmine salicylate (0.25% to 1%) into the conjunctival sac in the preoperative and postoperative periods is recommended. Morphine sulfate and the barbiturates may be used (for premedication and during general anesthesia) in the safe management of patients with glaucoma for extraocular operation.

TABLE 2.—*Changes in Intraocular Pressures Following Intramuscular Injection of Atropine Sulfate and Scopolamine Hydrobromide in Subjects with Acute Glaucoma*

Subject No.	Dose, Mg.	Tension, Mm. Hg: Before Drug (P)		Av. for 2 Hr. After Drug (A)		Av. Change (A-P*)		Range During 2-Hr. Period of Measurement	
		Atropine							
		OD	OS	OD	OS	OD	OS	OD	OS
9	0.5	28.4	20.4†	24.4	19.3	—4.0	—1.1	24.1-26.1	18.8-20.4
10	0.5	28.4	20.4†	25.7	20.8	—2.7	+0.4	24.1-26.1	18.8-22.2
11	0.6	17.3†	31.7	16.5	31.2	—0.8	—0.5	14.8-17.3	29.5-31.7
		Scopolamine							
12	0.4	13.6†	34.2	13.9	28.4	+0.3	—5.8	12.5-14.7	27.3-31.8
13	0.5	18.8	14.6	16.7	14.0	—2.1	—0.6	14.6-18.8	13.4-14.6
14	0.6	28.4†	20.4	25.4	17.6	—3.0	—2.8	24.1-28.4	17.3-18.8

* Total average: for atropine, —1.45 mm. Hg; for scopolamine, —2.3 mm. Hg.

† Iridectomy.

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THE INFLUENCE OF VARIOUS CLINICAL DISORDERS AND DRUGS ON EXCRETION OF UROPEPSIN

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In order to determine the amount of uropepsin excreted every 24 hours by normal individuals as well as by those with diagnosed disorders, 960 uropepsin determinations were performed on 280 patients. There is a significant fluctuation in daily excretion by the same individual and a marked degree of overlapping of results between normal individuals and patients with duodenal and gastrointestinal lesions. Both physical and emotional stress may have an effect on uropepsin excretion. It is felt that these variables make the uropepsin excretion an unreliable test in routine gastrointestinal diagnosis.

The existence of a proteolytic enzyme in the urine has been known since 1861. In 1947, interest in this enzyme, usually referred to as uropepsin, was stimulated by Bucher's excellent review,[1] and since that time a considerable amount of literature has appeared. It has been demonstrated that uropepsin originates from the peptic cells of the stomach as an endocrine secretion and that urinary and plasma pepsinogen are identical with crystalline pepsinogen obtained from the stomach.[2] Uropepsin is found in the urine in amounts equal to about 1% of the gastric peptic output.[2b]

While there is agreement on the fundamental aspects of uropepsin excretion, opinions regarding the application of uropepsin assay to clinical problems and diagnosis differ widely. In the present study, 960 uropepsin determinations were performed on 280 patients. Our purpose was to determine the amount of uropepsin excreted by normal individuals and to assess the influence of disorders of the gastrointestinal tract, psychic stimuli, gastric surgery, pernicious anemia, and drugs on uropepsin excretion.

Method of Assay

In most instances, three or more 24-hour specimens were analyzed to establish the mean output in a given case. The procedure employed was a modification of the methods described by Bucher[1] and Anson and Mirsky[3] as reported by Gray and his associates.[4] A 1-ml. aliquot of acidified (pH 1.5), diluted (4:5) urine from a 24-hour specimen was incubated 5 ml. of 2% acidified (pH 1.5) hemoglobin subs at 37 C for 30 minutes. The reaction was termin with 10 ml. of 0.3*N* trichloroacetic acid and filt Tyrosine-like (phenol-positive) compounds prese the filtrate, resulting from the proteolysis of the h globin, were determined by use of the Folin-Cioc method.[4A]

A zero time control (blank) consisting of trich acetic acid-inactivated urine, and hemoglobin employed with each individual test to compensa chromogenic substances present in the urine and strate. Tyrosine standards (256, 128, and 64 mc milliliter) and reagent blanks were employed for

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ies of determinations. The results are expressed as its of uropepsin activity per 24 hours. One unit of opepsin activity is that amount of enzyme which ould release an equivalent of 0.04 mg. of tyrone-like compounds during a 30-minute incubation riod at 37 C.

Results

The results of uropepsin determinations in the major roups studied are shown in the figure.

Normal Uropepsin Excretion.—The mean 24-hour opepsin excretion of 93 normal subjects without emonstrable gastrointestinal disease was 3,556 units, ith a standard deviation of ±1,265 units. There was treme variation in uropepsin output, which ranged om a low of 242 units to a maximum of 12,825 units. f the individuals studied, 64.5% had an output in the nge of 1,000 to 4,000 units. Daily 24-hour uropepsin utput was studied in four normal individuals during -to-10-week periods. Wide variations in daily excreon were noticed, despite the absence of any obvious ctors to produce such changes.

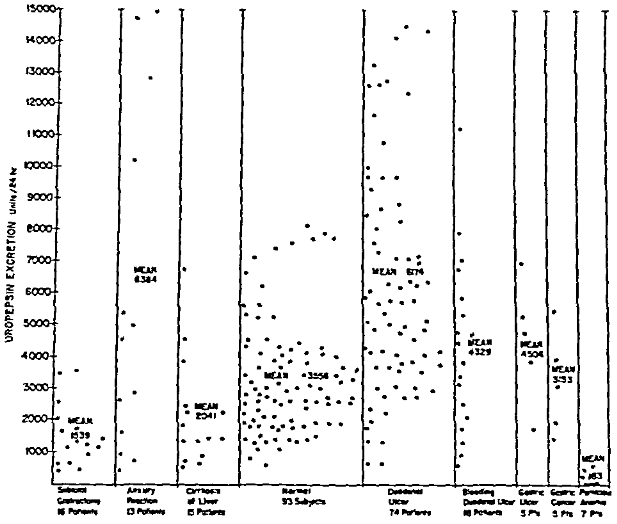
Excretion in Ulcer and Cancer Cases.—Seventy-four atients with proved duodenal ulcers had a mean 24-our uropepsin output of 6,147 units, with a standard eviation of ± 3,773 units. Again, both a wide indiidual variation and day-to-day fluctuation in the same atient were noted. During the course of ulcer therapy nd healing, no significant changes in uropepsin exretion were noted. The mean 24-hour uropepsin excreion of 18 patients with proved bleeding duodenal lcers was 4,329 units, with a standard deviation of ± 2,630 units. Extreme fluctuations in uropepsin exretion were again noted. Only five patients with roved benign gastric ulcerations were studied. Their mean 24-hour excretion of uropepsin was 4,506 units. Five patients with proved cancer of the stomach had a mean 24-hour uropepsin excretion of 3,153 units.

Excretion in Cases of Pernicious Anemia.—Seven patients with pernicious anemia had extremely low excretions. Uropepsin was absent in four cases, and in the other three cases the mean excretion was 409 units. There was no change in uropepsin excretion after the use of cyanocobalamin (vitamin B_{12}) and clinical remission. One patient presented a clinical picture resembling exogenous cyanocobalamin deficiency. After cyanocobalamin therapy in this patient, the uropepsin excretion rose to normal levels despite the persistence of histamine anacidity. In two patients with histamine anacidity but who were otherwise apparently normal, uropepsin excretion was within normal limits. The pH of the gastric contents in these patients was not determined. One patient with posterolateral sclerosis and achlorhydria, without, however, the hematological manifestations of pernicious anemia, had a 24-hour uropepsin excretion of 143 units. There was no increase in excretion during either cyanocobalamin or corticotropin therapy.

Excretion in Cases of Cirrhosis of the Liver.—The mean 24-hour uropepsin excretion in 15 patients with Laennec's cirrhosis of the liver was 2,014 units, with a standard deviation of ± 1,662 units. In two patients with combined duodenal ulcer and cirrhosis of the liver, uropepsin excretion tended to be high (5,800 and 6,800 units).

Excretion During Anxiety State.—Thirteen patients with the diagnosis of acute anxiety state had a mean 24-hour uropepsin output of 6,384 units. None of these patients had gastrointestinal symptomatology or radiologically demonstrable gastrointestinal disease.

Excretion in Cases of Subtotal Gastrectomy.—Sixteen patients with subtotal gastrectomies had 24-hour uropepsin excretions varying from 481 units to 3,543 units, with a mean excretion of 1,539 units and a standard deviation of ± 323 units. To minimize the effect of any "alarm" reaction, all excretion values were obtained at least one week after the patient had undergone surgery. There was no apparent relationship between the amount of stomach removed and the postoperative uropepsin excretion, nor could a definite relationship be established between preoperative and postoperative levels.



Uropepsin excretion in normal subjects and patients with gastrointestinal disorders, anxiety reaction, and pernicious anemia.

Miscellaneous.—No pattern of uropepsin excretion could be established for a miscellaneous group of patients with gastrointestinal disorders including regional ileitis, acute pancreatitis, cholecystitis, acute appendicitis, carcinoma of the large intestine, or diverticulitis. Three patients with chronic ulcerative colitis had 24-hour uropepsin excretions varying from 5,800 to 7,500 units with a mean of 6,700 units. Three patients with acromegaly excreted normal amounts of uropepsin.

Effects of Drugs.—Attempts to decrease the uropepsin excretion of patients with duodenal ulcer with anticholinergic drugs were unsuccessful. Atropine, methantheline (Banthine) bromide, and propantheline (Pro-Banthine) bromide were given orally in doses sufficient to produce dryness of the mouth and/or visual blurring. No significant change in uropepsin excretion was noted. Six patients with duodenal ulcers were treated with reserpine given orally in doses of 2 mg. daily. No significant changes in uropepsin excretion resulted.

In an attempt to alter the renal excretion of uropepsin, probenecid (Benemid), 2 Gm. daily, was administered to six patients. There was no effect on the excretion of uropepsin. Neither carinamide nor acetazolamide (Diamox) altered the excretion of uropepsin. Corticotropin was administered to 10 patients and resulted in an average increase of 75% in the uropepsin excretion. As long as three weeks may be required to achieve a maximum response to corticotropin. No increase occurred in two patients with pernicious anemia who received corticotropin. Testosterone had no effect on uropepsin excretion in two patients.

Comment

In our experience, the determination of the 24-hour uropepsin excretion has limited clinical application. There is a significant fluctuation in daily excretion by the same individual and a marked degree of overlapping of results between normal individuals and patients with duodenal and gastrointestinal lesions. This is apparent from the high standard deviations. Both physical and emotional stress may have an effect on uropepsin excretion. An example of this is demonstrated by the elevated levels in the majority of the patients with anxiety reactions. It is felt that these variables make the uropepsin excretion an unreliable test in routine gastrointestinal diagnosis. A similar view has been expressed by others.[5] Some investigators,[6] however, feel that the test has a definite place in the differential diagnosis of gastrointestinal disorders.

The complications of peptic ulcer such as hemorrhage do not appear to alter the uropepsin excretion. The presence of high levels of uropepsin excretion in gastrointestinal bleeding favors the diagnosis of peptic ulcer rather than esophageal varices, since the excretion of uropepsin tends to be low in cases of cirrhosis of the liver. In the present series, however, several patients with proved bleeding duodenal ulcers had low levels of uropepsin excretion.

Subtotal gastric resection tends to be followed by a decrease in the average uropepsin excretion. The decrease does not appear to be proportional to the amount of stomach tissue removed. Levy and Levine[7] have recently reviewed the subject of uropepsin excretion after gastrectomy.

An absence of or marked decrease in uropepsin excretion has been consistently noted in patients with pernicious anemia. This renders the test a valuable adjunct in the diagnosis of this disease. It may be of particular help in differentiating pernicious anemia from other macrocytic types of anemias.[5a]

An increase in the excretion of uropepsin following the administration of corticotropin has been a fairly consistent finding.[8] The increase is probably mediated through a humoral mechanism involving the hypothalamic-pituitary-adrenal-gastric axis that is independent of the vagus nerve.

Although anticholinergic compounds had no effect on uropepsin excretion in the present study, there have been reports[9] of a decrease during the use of these drugs. Balfour[10] found an an increase in uropepsin excretion during testosterone administration. We found no change in amount of uropepsin excretion in two patients treated with testosterone, and also no effect from oral use of reserpine, probenecid, acetazolamide and carinamide.

Summary

Nine hundred sixty uropepsin determinations were made on 280 patients, both without demonstrable disease and with disorders of the gastrointestinal tract, cirrhosis of the liver, anxiety states, subtotal gastrectomies, and pernicious anemia. Because of considerable variation in the daily uropepsin excretion and the degree of overlapping between normal values and those in patients with demonstrable gastrointestinal disease, it is felt that the test is of little value in differential diagnosis. Uropepsin was absent or low in seven patients with pernicious anemia. The assay may be a valuable diagnostic aid in certain cases of macrocytic anemias. Corticotropin caused a significant increase in uropepsin excretion. The use of other drugs (acetazolamide [Diamox], probenecid [Benemid], carinamide, and testosterone) had no apparent affect on uropepsin excretion.

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CLINICAL NOTES

TWO NEW MODIFICATIONS OF THE ENDOTRACHEAL TUBE

Frank Cole, M.D., Lincoln, Neb.

The practice of endotracheal anesthetization not infrequently imposes two problems: easy insertion of the tube, for which exact control of the distal end of the tube is needed and is rarely provided, and the leaking inflatable cuff. In an attempt to solve both problems, I offer two devices, the threaded endotracheal tube and the double-cuff endotracheal tube.

Threaded Endotracheal Tube

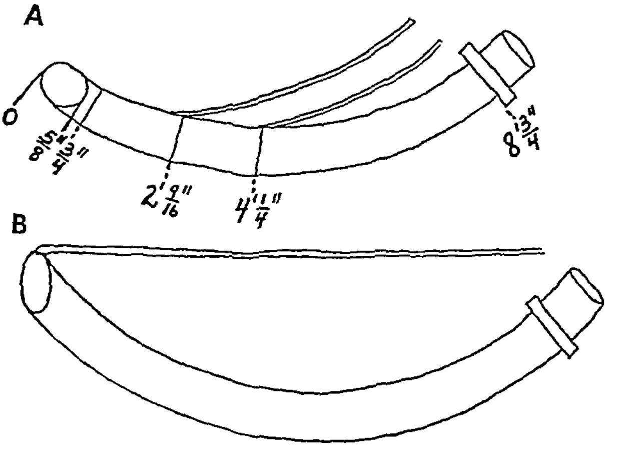
With the use of a simple paper-punch, a small hole is made near the end of the tracheal tube, and a strong thread is passed through the hole. The anesthesiologist then holds the tube in the usual manner and manipulates the thread with two fingers. In this way, the sharp upward curve at the end of the tube and the precise control of the tube, both so necessary to tracheal intubation, are obtained. Care must be taken that the thread does not injure tissues anterior to it. The thread can be knotted and left in place, or it can be withdrawn.

Double-Cuff Endotracheal Tube

It is no exaggeration to say that the patient's safety and perhaps his life may depend on airtight endotracheal anesthetization connections at any time during surgery, particularly in thoracotomy and in operation for intestinal obstruction. It is sometimes a harrowing experience for the anesthesiologist to discover a serious leak in the inflatable cuff while surgery is going on, particularly when thoracotomy is being performed.

With the conventional single-cuff tube, when a leak occurs, the anesthesiologist can resort to or is driven to any one of the following 10 remedial devices to (1) do nothing if the leak is small; (2) cut the balloon off; (3) keep adding air to the cuff; (4) intubate anew; (5) insert a pharyngeal pack; (6) change to nitrous oxide; (7) put a mask over the patient's face and the tube; (8) avoid pressure; (9) raise rates of flow; and (10) remove tube and convert to mask.

Where the endotracheal tube does not afford a leakproof system, anesthesia may become dangerously light, aspiration of gastric contents may occur, and pressure in the form of controlled or artificial respiration may be impossible. To overcome these difficulties, I have explored the possibility of attaching two inflatable cuffs to an endotracheal tube, so that a leak in the first cuff occurring during surgery can be remedied merely by inflating the second cuff. There is another advantage afforded by a double-cuff tube. Although keeping a cuff inflated too long may produce laryngeal ischemia or edema, the anesthesiologist may hesitate to deflate the cuff even for a little while during a long operative procedure; two cuffs can, of course, be alternately inflated and deflated, so that the pressure exerted by the cuffs occurs at different points in the trachea.



Endotracheal tubes. *A*, double-cuff tube. *B*, threaded tube.

In 150 consecutive intubations, leaks in the inflatable cuff system occurred 13 times, with 2 such leaks occurring in the balloon and thus easily reme-

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died. Of the remaining 11 leaks, 5 were large and 6 were slight. Eleven leaks out of 150 intubations constitute an incidence of 7.3%. Assuming that a cuff will leak in 7% of all cases, then the numerical advantage of having a second cuff is easily calculated. The first cuff will leak in 7% of cases, but the second cuff will stop the leak 93% of the time, so that a two-cuff tube will leak in 7% times 7%, or in 0.5% of cases. A one-cuff tube will thus leak once in 14 times, while a two-cuff tube will leak only once in 200 times. It must be pointed out that all cuffs are tested on the tubes, under pressure, and under sterile water, before being used.

Since the balloon (hanging from the end of the catheter that leads to the inflatable cuff) serves little or no useful purpose and leaks all too frequently, it is my practice to cut it off and insert endotracheal tubes without balloons. It has proved possible to put two inflatable cuffs on an endotracheal tube; such tubes have been used successfully at the Lincoln Ge Hospital and are now employed routinely in ations in which leaks are disastrous, as in thoracot

There are five points of measurement to be loc on such a tube, and their distances from the d end of the tube are: (1) the proximal end of beveled opening, ⅝ in. or 15 mm.; (2) the beginnin the first cuff, ¾ in. or 19 mm.; (3) the joining of two cuffs, 2 9/16 in. or 65 mm.; (4) the end of second cuff, 4¼ in. or 108 mm.; and (5) the end of rubber or plastic endotracheal tube, 8¾ in. or 222

It is essential that the auxiliary or proximal exert most of its effect within 4 in. of the end o tube, since the trachea does not usually exceed in length. When the tube is finished, both bal are removed and the cuff-catheters are cut so they hang at uneven lengths; in this way, the thesiologist can always tell which cuff he is inf or deflating.

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ELECTROMECHANICAL ARM SLINGS

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and
Donald Smith, B.S., West Orange, N. J.

Many disabled persons who have hands that are capable of functioning well are prevented from using them due to the loss of shoulder, arm, and forearm muscle power as a result of poliomyelitis or other causes. Electrically controlled slings can aid such severely disabled persons to adapt to their home and work environments. These electromechanical slings allow the person's arms to be placed in a wide variety of functional positions, from a 90-degree elbow flexion at a table level for the beginning phase of eating or working to a 90-degree shoulder flexion for such activities as reaching for food on the upper shelf of a cupboard or tools on a high ledge (fig. 1).

The slings can be lowered to a level where the person can independently "crawl" or be placed into the elbow and forearm slings; then, by the use of a switch, the arms are brought to the level at which the patient desires to function or work. The maximum pressure needed to raise the hand to the mouth by use of these slings is less than ¼ lb. on the electrical switch. This pressure can be applied by flexion of the finger tip, toe movement, shoulder shrug, leg movement, or even flexion and extension of the neck.

When both the upper arm and the forearm are su ported, a broader variety of hand activities can performed with greater coordination and less physi fatigue. Activities of daily living such as eating, sh ing, brushing teeth, or combing hair can be acco plished efficiently by first electrically lowering arms to the selected level for picking up the necess implement and then pressing the switch to raise arm to head level.

Since the range of shoulder motion, with th slings, can vary from a 0-degree extension to 90-deg forward flexion, occupational activities requir bilateral arm movements, such as soldering, electri wiring, mechanical drawing, and woodworking, be performed (fig. 1). As each sling is separately c trolled and operated, the arms can be placed in needed position of function as indicated by the oc pational pursuit.

The apparatus is composite and can be convenie connected to a standard wheel chair or table. No ad tional apparatus is necessary. This standardizat makes its use practical for different persons with va ing degrees of muscle-power involvement. The elec mechanical sling (1) aids the severely handicap person in his performance of the activities of d

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From the Kessler Institute for Rehabilitation. Mr. Smith is a Fellow of the National Foundation for Infantile Paralysis.

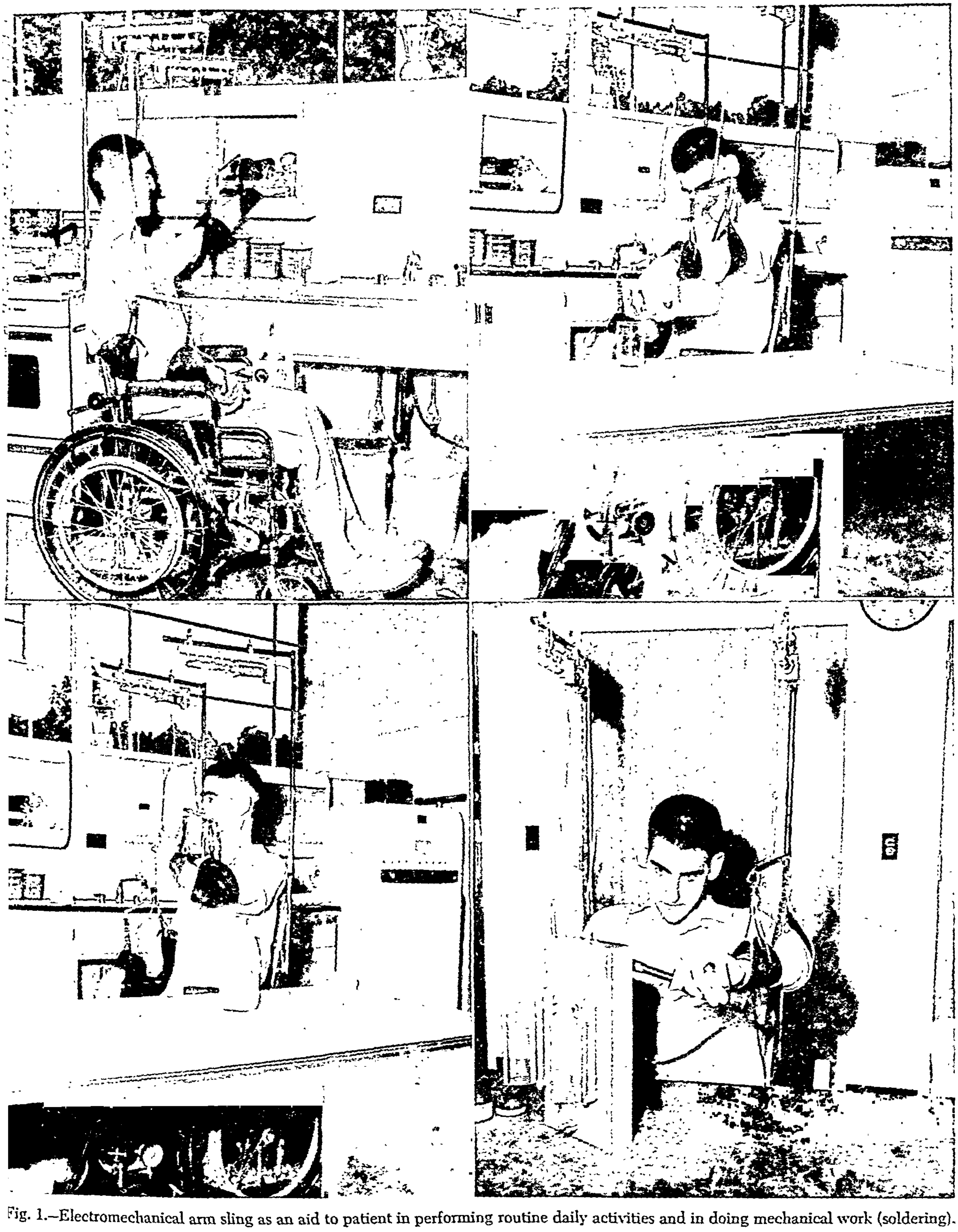

Fig. 1.–Electromechanical arm sling as an aid to patient in performing routine daily activities and in doing mechanical work (soldering).

living; (2) increases the scope of occupational opportunities; (3) supports the shoulder, arm, and forearm; and (4) permits greater range of motion for activities that require bilateral action.

Construction

The principle of operation of the electromechanical overhead *arm sling lies in the fact that a cable,* which suspends the arm sling, winds and unwinds around a spindle attached to an overhead bar. This motion of the sling results in elevation and lowering of the arm (fig. 2). The basic structure is a modification of the standard right-angle overhead bar that is affixed to the upright part of the back of a standard wheel chair or a table. The perpendicular section of the bar is placed so as to rotate freely in a 360-degree arc, thus making the horizontal overhead section available for wide lateral *arm motion* when the patient is in t sling. *Holes* are *drilled* in the overhead horizontal b at *the proper places* for holding of the spindle, mo and relay unit.

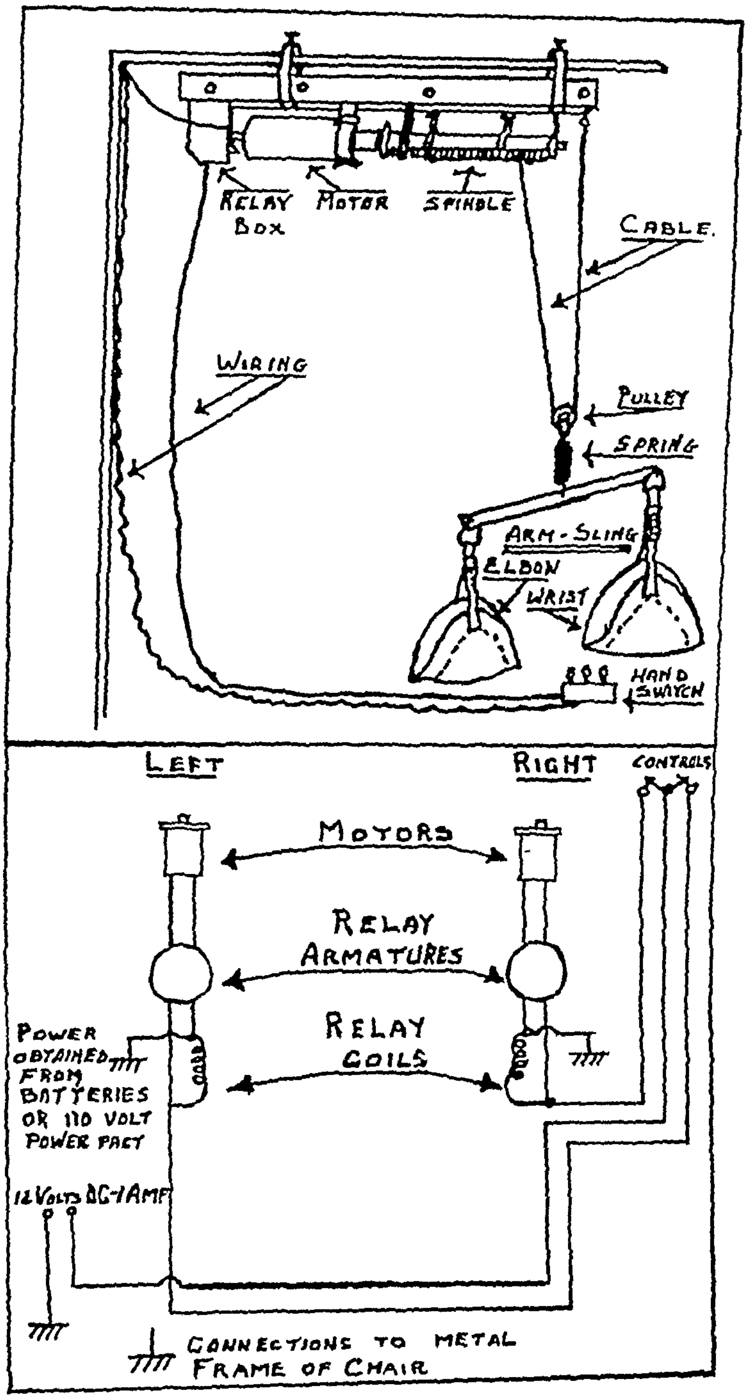

Fig. 2.—Diagram showing principal parts of, and wiring system for, arm-sling unit.

The spindle is a metal cylinder that is grooved, o lathe, like a *screw, so* that the cable which suspe the *sling may* wind and unwind without snagging o bunching. The spindle is set into ball bearings at ea end to reduce friction and is attached at one end to cylindrical 12-volt D. C. *motor* (240 *rpm*) with a bu in gear. The motor, in turn, is connected to a re unit of the type used in toy train locomotives. T switch is controlled by a hand, a foot, the neck, o other part of the body. The relay unit controls t direction of the motor and, hence, the spindle in clockwise or counterclockwise direction.

The cable which suspends the sling is fixed at o end to the overhead bar and at the other end to t spindle; it first passes through a pulley to which t *sling is fastened.* The electrical *unit is* so construct that, on the first closing of the switch, the sling elevate by means of the spindle's rotation in a cloc wise direction. *On the opening of the switch,* the slin stops at the desired height. The second closing of t switch *reverses the direction of the spindle* to counte clockwise *so that the sling may be lowered,* and o the opening *of the switch it stops in the desired* po tion. The whole unit is powered by a 12-volt batter that is located under *the seat of the wheel* chai Figure 2 *illustrates* the wiring *system* for a bilatera *electromechanical* arm *sling unit.*

Report of a Case

A 20-year-old male electrical-engineering student was ad mitted to a general hospital in September, 1954. The diagnosi was *poliomyelitis* with *paralysis of* all neuromuscular com *ponents of the trunk and extremities and respiratory* inadequacy The performance of a tracheotomy was *not necessary,* as ther was no bulbar involvement. Hospitalization in the gener hospital was *necessary for a period* of 18 months.

At the time of the patient's discharge from the general ho pital to his home and his entrance into a rehabilitation cente he presented the following status: A rocking bed was use during his sleep; a chest cuirass respirator was used for re periods of one-half to one hour twice during the day, and th patient could sit in his wheel chair without undue fatigue fo periods of from one to three hours without respiratory assist ance. Respiration was accomplished by use of the accessor muscles of the neck and by intercostal *movement.* The periph eral muscles showed considerable weakness, *and the* patient's lower extremities were completely paretic. There was no gros abdominal power. The head and neck were well controlled. There was marked lateral weakness in the shoulders and elbows, with lack of functional motion. Fair functional motion of the wrist, fingers, and thumb bilaterally was found. The patient was *unable to perform* any functional activities of any type.

After a thorough evaluation had been made and therapeutic procedures carried out, it was recommended that, due to the lack of return of further functional motion in any of the in- *volved systems,* mechanical devices be obtained and used by the patient. Electromechanical slings were obtained and fabricated by the patient *himself.*

Through training in the use of the electromechanical aid, the patient is *now available* for occupational placement. He has considered returning to school and, in conjunction with this plan, is now working with several *electronic* manufacturing companies as a consultant in the engineering and fabrication of similar devices *for* other disabled persons.

EFFECTIVE METHOD OF STRAPPING THE LUMBOSACRAL REGION

John T. Bate, M.D., Louisville, Ky.

fter the trial of several methods, over many years, treating the acute back pain which usually starts as atch or painful sensation when an individual who s bent over to pick something up (thus flexing the nbar spine and hips while the knees are straight) rts to resume the erect position, I have been able to ovide considerable immediate relief by a relatively expensive temporary support. This supports the nbosacral region in a relatively straight position, us embodying partially and temporarily the prinple of the Williams low-back brace.

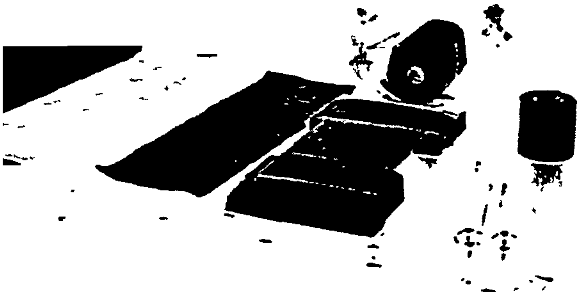

Fig. 1.—Showing the sponge rubber attached to the ends of e board, gauze to protect skin from rubber and board, 5 yd. 4-in. elastic bandage, and roll of 2-in. adhesive.

A wooden forearm splint of the type formerly wide- used in the treatment of fractures of the bones of ie forearm, made of a firm, soft type of wood (not icca or basswood), 18 in. long, 4 in. wide, and $\frac{3}{16}$ in. iick, is sawed into two equal lengths. To each end f one half of this board is attached a piece of sponge ibber. While many thicknesses and dimensions could e used, a satisfactory size is 5 in. by 4 in. by ½ in. This placed so as to overlap the end of the board, about in., and the sides ½ in., and held in this position with small piece of adhesive tape. Two strips of folded auze cut from a package of sterile gauze, each about 2 in. long, 4 in. wide, and consisting of four folded iicknesses are placed over the sponge rubber and oard in such a way as to prevent either from coming contact with the skin (fig. 1). The skin of the lumar region of the back flanks and the sides of the abomen are painted with compound tincture of benzoin. sufficiently large place of the gauze of the kind hich was used to cover the splint is now cut and pened up so as to cover the anterior surface of the bdomen and prevent the elastic adhesive from stickg to the hair. With the padded splint placed so that ne portion of the sponge rubber fits over the proximal portion of the sacrum and the other over the upper lumbar, or lower dorsal region (fig. 2), it is now held in place by means of 5 yd. of 4-in. elastic adhesive bandage applied circularly. The end of the elastic adhesive is fastened in place with the usual type of 2-in. adhesive and the protruding gauze is turned down so as to protect the protruding end of the sponge rubber and is held in place with adhesive.

Depending upon the type of skin the individual has, this can be left in place for three to six days. When combined with medication and the usual instructions as to posture, bed, and methods of protecting the lumbar region, this method of strapping will often relieve the simpler forms of back pain within this period. Occasionally, reapplication may be decided on in an individual who has obtained much relief, is satisfied, but thinks he needs the support for a few days longer.

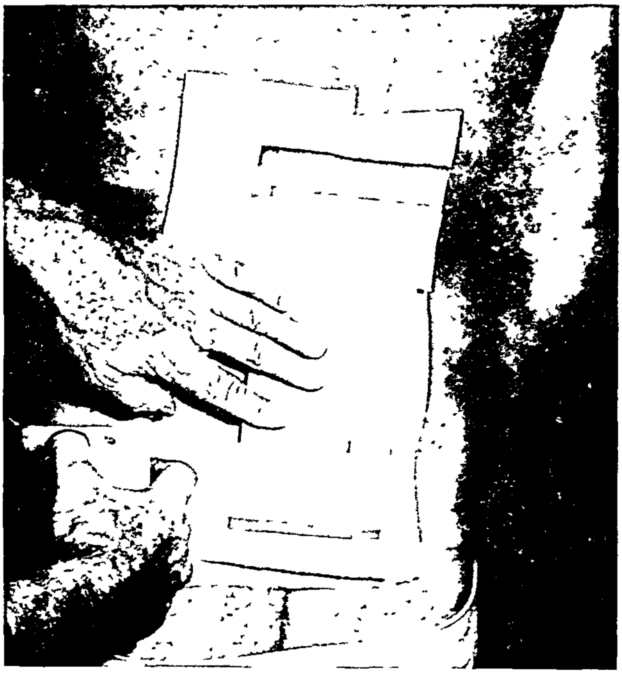

Fig. 2.—The padded board being applied. The upper part was brought into midline before the circular strapping was completed.

This method gives the best results in individuals who have definite acute muscle spasm of a few hours' to a few days' duration. More severe and chronic cases, of course, require other, or additional, treatment.

301 W. Ormsby.

ACUTE TRANSIENT MYOPIA ASSOCIATED WITH USE OF ACETAZOLAMIDE (DIAMOX)

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and
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Acetazolamide (Diamox) has become a popular drug in the practice of obstetrics and gynecology. Its value in the treatment of premenstrual tension has been described by Greenblatt.[1] Assali and co-workers[2] have also mentioned its action in treating edema of pregnancy. In other branches of medicine, acetazolamide has been used for the treatment of congestive heart failure,[3] glaucoma,[4] and epilepsy.[5]

The toxicity and side-reactions described have been minimal and in our experience have consisted mainly of tingling sensations in the fingers and occasional drowsiness. We have observed an unusual side-reaction that was quite alarming to the patient and somewhat baffling to the physicians. This consisted of an acute transitory myopia. One other such case has been reported by Black.[6]

Report of a Case

The patient was a 30-year-old woman, seen for the first time on Aug. 21, 1956, with the complaints of severe abdominal swelling, lower abdominal pain, and marked irritability. These symptoms were noted approximately one week premenstrually and had been present for the past 10 months. The menstrual periods were regular but scant and associated with severe dysmenorrhea. Her latest period had begun on Aug. 15 and had continued for four days. She was gravida 2 para 2, her last pregnancy having occurred five years previously. Six months after this pregnancy she had had a dilatation and curettage and cervical conization performed but no other surgery. The remainder of her history was negative.

Physical examination showed a blood pressure of 110/80 mm. Hg, pulse rate 76, and weight 143.5 lb. (65.1 kg.). General physical findings were within normal limits. There were no abdominal masses, and pelvic examination revealed no gross abnormalities. The hemoglobin level was 12.6 Gm. per 100 cc., and urinalysis was negative. It was felt that the patient had a symptom complex consistent with premenstrual tension. As part of her therapy, she was advised to be on a low-salt diet and was given acetazolamide intermittently for 10 days premenstrually. The dosage was 250 mg. daily, for four days; this was stopped for two days and repeated for four more.

On Sept. 2, the patient was in an automobile accident and received a bump on the head. At the scene of the accident, she was checked by a physician who reported no evidence of injury. Acetazolamide therapy was started on Sept. 4 and continued for four days, stopped for two days, and continued for two more days. On Sept. 9, the patient's vision became blurred, and the next day she was seen by one of us (W. S.) for ophthalmological examination. Her vision on Sept. 10 in each eye was 20/100, improved to 20/20 with a −2 sphere lens in each eye. The ocular tension was normal, there was no muscular imbalance, the fundus showed no changes, and pupillary reactions were normal.

The patient was advised to discontinue all medication. She returned to the office of her gynecologist (S. S. B.) on Sept. 12. Her vision was considered worse, and no improvement noted in her premenstrual tension. She was emotionally u and feared that she was going blind. On the same day, returned to her ophthalmologist, who found that she had come more myopic. Her vision was 20/300, corrected wi −4.5 sphere to 20/30 in each eye. Ocular tension was nor and no opacities were noted. Visual fields were normal. underlying cause of her condition was not apparent.

A glucose-tolerance test, performed on Sept. 13, reveale normal curve. A repeat ophthalmological study on Sept. and Sept. 24, after the completion of her menstrual pe revealed a complete remission of symptoms, and her eyes was 20/20 bilaterally on both days. Subsequent follow-u this patient revealed a cervical stenosis which was relieve cervical dilation. After this procedure, her dysmenorrhea improved. The premenstrual tension was relieved by other medication along with a low-salt diet.

Comment

Acute refractory changes have been noted in m bolic disorders such as diabetes mellitus. Emacia diseases, causing dehydration and acid-base im ances, have also caused refractory errors. The al tion of vision may stem from changes involvin areas of the visual apparatus. Transient myopia been reported with the use of arsenicals, disulf and sulfonamides.[7] Irritative spasm of the ci muscle, osmotic changes in the lens, and local encephalitis (possibly due to allergic sensitivity) been some of the explanations offered by Duke-El The same author concludes that "the mechanis the refractive changes, however, is by no means c Acetazolamide is a sulfonamide,[9] and it is quite sible that the reaction described in the case of patient is on the same basis as those previously cussed.

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COUNCIL ON DRUGS

NOTICE OF CHANGE IN OPERATION

LISTING OF PREPARATIONS WITH MONOGRAPHS

As an aid to physicians in writing prescriptions, the Council has adopted an expansion of the section in New and Nonofficial Drugs, "Principles Governing the Evaluation of Drugs Described in New and Nonofficial Drugs," to provide for listing pharmaceutical preparations, including either sizes or strengths, in conjunction with monographs published in the Council's column of The Journal and in future annual editions of New and Nonofficial Drugs. Available dosage forms, and either sizes or strengths, will be listed alphabetically according to appropriate nonproprietary pharmaceutical terminology only. In order to avoid undue expansion of monographs, with this kind of information, available sizes or strengths will be limited to dosage units or concentrations, depending on the type of formulation.

The listing of available preparations, which is instituted with this issue of The Journal, should not be construed as affecting any statements in monographs that may be critical of the usefulness, safety, suggested dosage, concentration, or particular route of administration of a drug. However, it is hoped that this added feature will increase the usefulness of the Council's publication to physicians when such information is desired for prescribing.

The Council will continue to list applicable commercial names of evaluated drugs of which it is informed and urges the continued cooperation of industry in supplying scientific data and reports of investigations to aid in the early evaluation of new drugs. Commercial outlets are further invited to supplement such future data with information on available dosage forms, sizes, and strengths or otherwise to inform the Council respecting any additions or corrections concerning preparations which are included in subsequently published monographs. The Council also desires information concerning adverse reactions to drugs that may appear after extensive use.

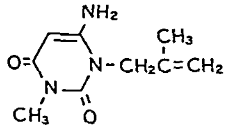
This notice of the desire of the Council to include dosage preparations and to continue its policy for listing commercial names will not be repeated in the Council's column of The Journal, since statements to this effect will appear annually in New and Nonofficial Drugs.

NEW AND NONOFFICIAL DRUGS

Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Drugs are based on the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary.*

Amisometradine.—1-Methallyl-3-methyl-6-aminotetrahydropyrimidinedione.—The structural formula of amisometradine may be represented as follows:



Actions and Uses.—Amisometradine, an orally effective, nonmercurial diuretic agent, is a structural isomer of aminometradine, and its pharmacological actions are similar to those of the latter agent. Thus, amisometradine is proposed for the maintenance of an edema-free state in patients responsive to diuretic therapy and for the initiation of diuresis in most edematous conditions except severe congestive heart failure. The drug also may reduce or, in mild cases, eliminate the need for parenteral injections of mercurial diuretics. Amisometradine has been successfully employed for the gradual mobilization of edema fluid in a substantial number of patients with mild to moderate congestive heart failure, hepatic cirrhosis, and the nephrotic syndrome. It has also been useful for the management of water and electrolyte retention during pregnancy (mild preeclampsia) and in the premenstrual period.

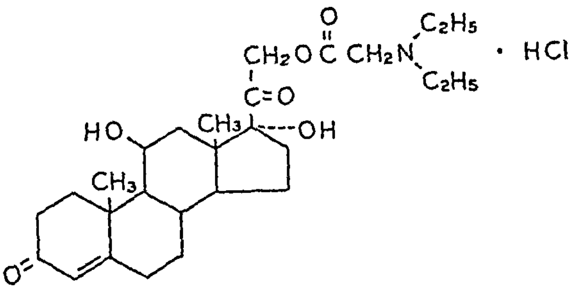
The chief difference between amisometradine and aminometradine lies in the possibly diminished incidence of gastrointestinal upsets associated with the former drug. Some data have indicated that whereas nausea or vomiting occur in approximately 20 to 30% of patients to whom aminometradine is administered, this incidence is reduced to about half, or 10 to 15%, when amisometradine is employed. Thus, from the standpoint of patient tolerance, amisometradine appears to offer some advantage. Since the clinical effectiveness of both drugs appears to be about the same, it seems likely that amisometradine may eventually replace aminometradine for the treatment of edema.

Amisometradine has not been extensively studied from the standpoint of serious toxic effects, and although the drug so far has not been observed to cause such reactions, physicians should be alert to the possibility of their occurrence with extensive and prolonged use.

Dosage.—Amisometradine is administered orally. Dosage is governed largely by severity of edema and individual response as reflected by the serial weight record of the patient. As a general guide, 400 mg. may be administered four times daily with meals on the first day of therapy and twice daily thereafter. Patients with mild edema may be satisfactorily maintained on 400 mg. or less per day. On the other hand, daily amounts up to 3.2 Gm. may be required in more severe cases.

Preparations: tablets 400 mg.
Applicable commercial name: Rolicton.
G. D. Searle & Co. cooperated by furnishing scientific data to aid in the evalution of amisometradine.

Hydrocortamate Hydrochloride.—17-Hydroxycorticosterone-21-diethylaminoacetate hydrochloride.—The uctural formula of hydrocortamate hydrochloride may be represented as follows:

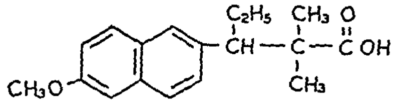


Actions and Uses.—Hydrocortamate hydrochloride, an ester-salt of hydrocortisone, is used for the treatment of dermatoses known to be responsive to topical gluco-corticoid therapy. The drug exerts an excellent anti-inflammatory action against such cutaneous eruptions and is believed to be approximately twice as potent, milligram for milligram, as free hydrocortisone or its acetate ester. Thus, hydrocortamate hydrochloride is effective against acute or chronic dermatoses that have an allergic or inflammatory basis and are associated with pruritus. These would include, among others, such conditions as atopic and contact dermatitis, pruritus with lichenification, seborrheic dermatitis, and nonspecific anogenital pruritus. Clinical experience to date has been confined largely to short-term therapy on relatively limited areas of the body. Although the possibility of systemic reaction after prolonged or intensive therapy does exist, this appears to be quite unlikely. To date, no reactions suggestive of systemic absorption have been observed with hydrocortamate hydrochloride or with any other topical preparation of hydrocortisone. Likewise, no appreciable changes in eosinophil counts or excretion of 17-ketosteroids have been demonstrated after such therapy. Nevertheless, pending the accumulation of more information on this subject, hydrocortamate hydrochloride should be used cautiously in long-term therapy, especially in cases in which large areas of abnormal skin surfaces are involved. The drug should not be applied to infected areas. Its sensitizing potential is not known, but in view of its similarity to other local preparations of this class, this is considered to be negligible. The ointment base rather than the drug may elicit some sensitization in particular instances.

Dosage.—Hydrocortamate hydrochloride is applied topically in a 0.5% ointment (5 mg. per gram). A small quantity should be applied to the affected areas of skin two or three times daily.

Preparations: ointment 0.5%.
Applicable commercial name: Magnacort.
Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of hydrocortamate hydrochloride.

Methallenestril.—α,α-Dimethyl-β-ethyl-6-methoxy-2-naphthalenepropionic acid.—3-(6-Methoxy-2-naphthyl)-2,2-dimethylpentanoic acid.—The structural formula of methallenestril may be represented as follows:



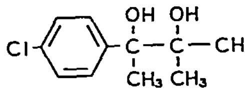
Actions and Uses.—Methallenestril, a nonsteroid estrogenic compound, is effective orally, and its onset of action is prompt. Its estrogenic potency, milligram for milligram, is apparently no greater than that of orally administered estrone; it is only about one-tenth as potent as diethylstilbestrol. Methallenestril causes less gastrointestinal upsets than does diethylstilbestrol. Otherwise, its administration in therapeutically effective doses is followed by about the same degree of nausea as is found with the other synthetic estrogens. In the reports available to date, there is some indication that methallenestril therapy may cause less withdrawal bleeding than do the other estrogens. However, if dosage is adjusted sufficiently to produce a comparable therapeutic effect, endometrial proliferation and subsequent withdrawal bleeding may be expected. Methallenestril is useful for the same conditions for which other natural and synthetic estrogens are employed and is subject to the same contraindications. (See the general statement on estrogens in New and Nonofficial Remedies.)

Dosage.—Methallenestril is administered orally. The usual initial dosage for menopausal symptoms is 6 mg. daily for three weeks; thereafter dosage is decreased

3 mg. daily for as long as required. For suppression lactation, 20 mg. is administered daily for the first e postpartum days. Doses of 6 mg. daily for four eks may be given for the treatment of postmeno-usal vaginitis, kraurosis vulvae, and pruritus vulvae. the initial treatment of postmenopausal osteoporosis, mg. per day for two weeks is usual; maintenance sage is 3 mg. daily. For the palliation of prostatic rcinoma, daily doses of 20 mg. may be administered.

Preparations: tablets 3 mg. and 20 mg.
Applicable commercial name: Vallestril.
G. D. Searle & Co. cooperated by furnishing scientific data aid in the evaluation of methallenestril.

Phenaglycodol.—2-*p*-Chlorophenyl-3-methyl-2,3-bu-nediol.—The structural formula of phenaglycodol ay be represented as follows:



Actions and Uses.—Phenaglycodol is one of a series f synthetic diol compounds that exert a mild depres-ant effect on the central nervous system. At least at he level of the spinal cord, the drug has properties n common with the interneuronal blocking agents such as mephenesin and meprobamate. Phenaglycodol and meprobamate have a common chemical derivation rom mephenesin. In the case of phenaglycodol, a degree of metabolic stabilization is achieved by full substitution on the OH-bearing carbon atoms. In experimental animals, phenaglycodol produces some degree of skeletal muscle relaxation and exerts an inhibitory influence on transmission through polysynaptic pathways. It also diminishes the severity of electrically induced convulsions in animals, and initial clinical experience has suggested a possible usefulness in epilepsy. As a muscle relaxant, phenaglycodol is much less potent than mephenesin. From the standpoint of overall clinical usefulness, phenaglycodol is probably most closely comparable to meprobamate. Hence, it may be characterized as a mild sedative with weak muscle-relaxing properties.

Phenaglycodol has been used to produce a calming or mood-ameliorating effect in patients with emotional instability, anxiety-tension states, and functional disorders. Although early reports have been favorable, there is need for more evidence to establish conclusively its usefulness as a psychotherapeutic agent. Studies designed to compare its tension-relieving effects with meprobamate are inconclusive. In some patients with anxiety states, the drug has elicited a degree of behavioral improvement; in other studies the effect has been primarily that of a placebo. In general, phenaglycodol appears to be similar in effectiveness to meprobamate, but the ultimate usefulness of this type of drug must await the results of further clinical experience.

From the evidence available to date, it would appear that phenaglycodol may have usefulness in the adjunctive management of simple neuroses. The drug probably has no place in the treatment of the more severe psychotic type of mental disturbance and cannot be classified as a tranquilizing agent in the same sense as chlorpromazine or reserpine.

The toxicity of phenaglycodol is low. No adverse effects on hepatic or hematopoietic function have been observed after long-term administration to animals and patients. In clinical experience, large doses are apparently without effect on blood pressure, pulse, or respiration. To date, drowsiness appears to be the only side-effect referable to therapy with phenaglycodol. This has occurred only occasionally and generally follows the administration of high doses.

Dosage.—Phenaglycodol is administered orally. The usual dosage for adults is 300 mg. three or four times daily.

Preparations: tablets 300 mg.
Applicable commercial name: Ultran.
Eli Lilly and Company cooperated by furnishing scientific data to aid in the evaluation of phenaglycodol.

Use of Ethchlorvynol for Daytime Sedation

The Council has evaluated the use of ethchlorvynol (Placidyl) for daytime sedation. This nonbarbiturate hypnotic has previously been described as useful for the induction of sleep in selected patients with simple insomnia. (See the monograph on ethchlorvynol in New and Nonofficial Remedies.) On the basis of additional evidence, the Council concluded that the drug may also be given in small doses during the day to allay or calm certain patients with organic or functional disorders characterized by anxiety or tension. Its clinical employment for this purpose has been confined largely to patients with mild anxiety neuroses, hypertension, and various skin diseases. It has also been used on a limited scale in patients with asthma, peptic ulcer, and cardiac disorders. Currently available evidence indicates that the drug exerts a mild sedative effect in such patients and that the incidence of side-effects is low (about 8%). Side-effects so far encountered include drowsiness, fatigue, hang-over, ataxia, vertigo, headache, nightmares, mental confusion, bad after-taste, nausea, and vomiting. There has been no observed tendency toward development of psychic dependence or habituation. Pending the accumulation of more clinical information, however, this possibility should be kept in mind, particularly when the drug is used over prolonged periods of time.

Dosage of ethchlorvynol for use as a daytime sedative should be individualized according to the response of the particular patient. Oral dosage usually ranges from 100 mg. twice daily to 200 mg. three times a day. If the drug appears to be rapidly absorbed, producing transient giddiness or ataxia, these side-effects will be minimized if the medication is given with a glass of milk or other light refreshment.

The Council voted to expand the monograph in New and Nonofficial Drugs to describe the use of ethchlorvynol as a daytime sedative.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of this additional use of ethchlorvynol.

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MAN CONTRACTING RABIES FROM MAN

GUEST EDITORIAL

Karl F. Meyer, M.D.

THERE has been much recent publicity concerning the administration of the Pasteur antirabies treatment to persons who were in contact with a patient who died of rabies. The indications for giving vaccine for rabies prophylaxis should be clearly understood. The following case illustrates the principles involved.

In July, 1956, a man was bitten by his dog while attempting to train her. The dog had no illness at that time but ran away and never was located. In April, 1957, the patient complained of headache followed by nausea and vomiting. Four days later he became severely ill, was unable to swallow, and was extremely apprehensive. That evening he was admitted to the hospital, where in addition to his extreme agitation he suffered from thirst and fear of water. He was removed to a mental hospital, where rabies was diagnosed. He died that evening, five days after the onset of his illness. Postmortem examinations and laboratory studies revealed Negri bodies in the brains of mice inoculated with tissue from the patient's brain. During the course of his illness the patient vomited and expectorated large amounts of saliva which contaminated the skin and clothing of most of the persons who tried to treat or restrain him.

The diagnosis of furious human rabies in a person who had thus contaminated his environment makes it necessary to decide whether the persons exposed to the patient should receive antirabies vaccine. This is always a difficult decision. A wave of anxiety, nearing hysteria, must be anticipated. People who have been with the patient during and before his illness will demand antirabies treatment. Babes in 1912 stated that human rabies presents little danger, because he knew of no case of transmission from man to man. That rabid human beings may bite others was well documented by observations at the Vienna Pasteur Institute in 1926.

In a critical review of older studies, Joseph Koch in 1930 emphasized that human-to-human transfer of rabies through bite or other means was rare and that a conclusively proved transmission had never been reported. The most comprehensive recent summary on rabies[1] mentions that the mother of Malpighi in the 17th century died from rabies after a bite inflicted by her daughter. Without documentation he stated that human rabies had followed the bite of rabid persons in Russia. During my recent visit to Russia I heard reports that rabies was transmitted from man to man by homeless orphans who roamed the streets of Moscow during the period after the revolution when medical and public health services were almost nonexistent. Few of these transmissions have been epidemiologically or etiologically investigated. In 1898 Palmirski and Karlowski in reporting the case of a man who became infected through coitus concluded that this was the only proved instance of interhuman transmission of rabies. Authorities believe, however, that transmission in this case was probably through the saliva.

Every thoughtful report on this subject advises that precautions be taken by attendants to avoid contact with saliva of rabies-infected patients. There is ample documentary evdience that rabies virus may be present in the saliva of human beings with rabies. As early as 1823 Magendie and Berschet infected a dog with human saliva. In 1881, Pasteur and his associates and Raynaud and his associates transmitted rabies to rabbits with saliva from rabid patients. Bardach in 1888 demonstrated salivary gland infections in human beings. Pertarelli in 1905, Keirle in 1898, Nicolle and Chaltiel in 1907, and Cruickshank and Wright in 1914, using rabbits as indicator animals, succeeded in producing rabies with saliva from rabid persons. In the United States, Sulkin and Harford in 1934 tested the saliva in two fatal human rabies infections and succeeded in isolating the virus in one. At the Pasteur Institute in Odessa, Palawandow and Serebrennaja in 1931 by intramuscular injection of guinea pigs demonstrated the rabies virus in the saliva of four of five patients studied. The saliva of six persons with paralytic rabies in Trinidad proved positive for rabies when injected into rabbits by Pawan in 1937.

The fact that rabies virus is transmissible through the saliva from human beings infected with rabies to various species of animals has been proved in many observations recorded in the past 30 years.

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1. Fermi, C.: La Rabbia, Siena, Italy, 1950, vol. 1, p. 41.
2. Wright, G. P.: Neurotoxins of Clostridium Botulinum and Clostridium Tetani, Pharmacol. Rev. 7:413-465, 1955.

The infectivity of the saliva has never been measured. It is probably slight but of adequate virulence to incite disease if properly introduced into scratch or bite wounds. These observations, together with those of Manouelian in 1936, who found Negri bodies in the endoneurocytes of the sensory and sympathetic fibers of the face and in the sympathetic ganglions and virus in the salivary and lacrimal glands in patients with rabies, suggest that the virus diffuses through the peripheral nervous system in man as in animals. Despite the observations and the extensive experimental work, the pathogenesis of rabies is in need of review. In particular, the role of blood and lymph requires investigation. There are evident similarities to the much-debated question of the spread of neurotoxin of Clostridium tetani and Cl. botulinum.[2]

The above-described patient dispersed saliva indiscriminately by spitting frequently at random and directly into the eye of a nurse. The secretion soiled the hands of a nurses' aide who had a weeping eczema. Another nurse was bitten by the patient while she was attempting to hold a mouth gag between his teeth. The patient's son, who was with his father throughout the illness, was scratched rather badly and had contact with saliva. Knowing that the saliva may contain rabies virus in human infections, one is duty-bound to treat instances of bite and exposure to saliva. The maniacal behavior of the patient was largely responsible for the fact that every person who tried to restrain him became soiled with saliva. The practical question is not whether prophylactic rabies treatment should be instituted but how to keep its use to an irreducible minimum. Probably twice as many contacts as really need it receive the Pasteur treatment. Any physician with the imprint of maniacal human rabies fresh in his mind will fully understand this situation. This is in the best tradition of preventive medicine.

The main reason why conclusive evidence of human-to-human transmission of rabies has not often been published is doubtless that all persons in intimate contact with the saliva of a rabid person are treated the minute the diagnosis is proved by laboratory tests.

THE ORAL CAVITY AND DISEASE

Sir William Osler has called the oral cavity a mirror of the rest of the body. Yet while the changes in eyegrounds that are associated with systemic diseases are well recognized, the changes in and around the mouth do not seem to have equal appreciation by the physician.[1]

Oral tissues are unusually sensitive indicators of the general health status of an individual. This easily accessible, painless diagnostic site particularly reflects initial signs of nutritional deficiencies, endocrine imbalances, gastrointestinal disturbances, communicable diseases, blood dyscrasias including the anemias, and excessive exposure to radioactivity. In addition to the many peridontal manifestations of medical illness, not the least important reflection of disease can be demonstrated by the teeth themselves. Up to 37% of persons with congenital syphilis have been found to have hypoplasia of the occlusal surface of all four first molars.[2]

With growing emphasis on the dangers of an individual receiving too much radioactivity, it is important to know what specific changes the oral cavity does show as a result of exposure to radiation. Along with the commonly recognized signs of overexposure to naturally occurring or man-made radioactive substances, such as alopecia, brittleness of the nails, and pigmentation,[3] certain diagnostic signs appear in the mouth. In a population exposed to atomic bombing, petechial mucosal lesions have been observed associated with aplastic anemia. Other signs include a glassy smooth tongue that is particularly susceptible to infection, gangrenous ulcers of the lips, and ulcers that penetrate large areas of the buccal mucosa. It is believed that the mucosal findings are similar to those occurring elsewhere throughout the gastrointestinal tract.[4] Exfoliation of the teeth due to osteomyelitis of the mandible was frequently observed. One interesting finding was the increased radiant energy detected in the metallic restorations of the mouth that was not present in the adjacent living tissue.

Dental x-ray pictures can reveal the only signs of osteonecrosis and osteomyelitis that might occur from overexposure in x-ray technicians, as well as research men and others closely associated with radioactive substances. Finally, one of the most commonly reported signs of overexposure to radiation is xerostomia, the dry mouth that results from lack of salivary flow. This manifestation does not depend solely on locally applied radiation but can reflect over-all body exposure.

While it may seem to some that the physician examining the teeth and surrounding structures is doing a dentist's job, or the dentist who diagnoses diabetes by oral lesions is overlapping into the medical field, oral manifestations of disease indicate the close proximity of the two doctors' areas of practice. The physician and the dentist working together have provided a much better understanding of oral medicine, and in mutually reciprocating their clinical findings, as well as their scientific research, they have markedly improved the overall care of the patient. The field of radiation protection may well be the impetus to enjoin in fact, not just in theory, the two health specialties.

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[1] Burket, L. W.: Oral Medicine: Diagnosis and Treatment, ed. 3, Philadelphia, J. B. Lippincott Company, 1957.

[2] Bradlaw, R. V.: Dental Stigmata of Prenatal Syphilis, Oral Surg. 6: 147-158 (Jan.) 1953.

[3] Cronkite, E. P.; Bond, V. P.; and Dunham, C. L.: Some Effects of Ionizing Radiation on Human Beings, United States Atomic Energy Commission, July, 1956.

[4] Bernier, J. L.: Effects of Atomic Radiation on Oral and Pharyngeal Mucosa, J. Am. Dental A. 39: 647-657 (Dec.) 1949.

ORGANIZATION SECTION

REPORT OF JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

The August, 1957, bulletin of the Joint Commission on Accreditation of Hospitals (660 N. Rush St., Chicago; Kenneth B. Babcock, M.D., director) is reproduced here for the information it contains that will be of interest to many physicians.—Ed.

To provide quality care for patients in hospitals, scientific tools are a necessity for both diagnosis and treatment. Although the extent and complexity of these facilities depend upon the needs of the patients whom the hospital aims to serve, no hospital can be without basic laboratory and radiological services.

Clinical Laboratory

In every hospital there should be a well organized, adequately supervised clinical laboratory with the necessary space, facilities and equipment to perform those services commensurate with the hospital's needs for its patients.

Good personnel and supervision are very important factors. It would be ideal if every hospital had its own pathologist. This is impossible because the demand is greater than the supply. Also, the amount of work in smaller hospitals does not justify the full time services of a pathologist. The Joint Commission on Accreditation of Hospitals believes strongly that if a hospital does not have the full time services of a pathologist, it should at least have the services of a pathologist on a regular part time or consultative basis. A hospital is not criticised for sending tissues out to a pathologist but if that same hospital has not been visited by or had its laboratory supervised by a pathologist for quite a long period of time, it must of necessity be scrutinized very carefully as to quality of service given.

The employment of technicians registered by the American Society of Clinical Pathologists is a factor in evaluating quality of laboratory services. Here again the actual number employed means very little without taking into consideration the type of work performed. Very frankly, however, a hospital without the services of a pathologist and without registered technicians cannot objectively be regarded as giving quality care.

Besides supervision and competence of personnel, the hospital laboratory is evaluated on the basis of the adequacy, speed and completeness of its laboratory service. All reports should be signed and filed in the patient's record. Duplicate copies should be filed in the laboratory. A tissue file and index should be maintained in every hospital laboratory. This index should be according to pathological diagnosis. Whether this index be simple or comprehensive is a question of judgment of the hospital and its needs.

Oral requisitions for laboratory work are not condoned. Requisitions may be made out by the nurse, but there should be an original order for the procedure, signed by the physician. This order should either be on the patient's medical record or in the physician's order book.

In order for a hospital to be accredited, the Commission requires that a urinalysis and either a hemoglobin test or hematocrit determination be done on all patients admitted. These are minimal requirements and in many instances should be exceeded. Additional requirements should be recommended and approved by the medical staff. The Commission has no requirements concerning laboratory work on outpatients. These policies should be determined by the local medical staff.

In a modern hospital, it is desirable that the hospital have a blood bank, established and supervised under strict regulations. Where this is not possible, the hospital should have at least proper blood storage facilities under adequate control and supervision. For the patient's safety these storage facilities should have an adequate alarm system, notifying hospital personnel of loss of electric power or faulty temperatures.

The percentages of autopsies performed and their utilization as a teaching medium is a very important factor in the accreditation of a hospital, and of necessity is closely allied to the pathology department. The actual procurement of permission for autopsies is largely a function and responsibility of the medical staff. An autopsy should be performed by a pathologist, but where this is not possible, the next best person is a physician versed in autopsy procedure and protocol. Every good hospital should have its own morgue if physically possible. The number of hospitals without morgues is quite high and the number not doing autopsies is considerable. Autopsies, as a means of staff education and improvement of clinical knowledge, rank extremely high in the minds of the Commissioners of the Joint Commission. As a rule of thumb, the Commissioners believe that non-teaching hospitals should have at least a 20% autopsy rate and teaching hospitals at least a 25% rate. Many good physicians feel this rate is too low and every effort should be made to exceed it.

Attention has been called recently to the necessity for checking the calibration of special laboratory instruments and equipment regularly and periodically. Faulty thermometers and inaccurate colorimeters have been reported in several instances in hospitals. Further checking showed they had not been checked since placed in service.

Where possible, the hospital pathologist should be a member of the tissue committee, preferably in an ex-officio, consultative capacity. The question has been frequently asked, "Should the pathologist be a member of the medical staff, entitled to vote and hold office?" The answer to this question is not within the jurisdiction of the Joint Commission on Accreditation of Hospitals and is a matter of judgment for each individual hospital. It can be stated from observation and information from most hospitals, that the answer is preferably "yes" and is done in the majority of hospitals.

X-Ray Department

A hospital, to be accredited by the Joint Commission, must have diagnostic x-ray facilities available in the hospital building proper or in an adjacent clinic or medical facility which is readily accessible to the hospital patients, physicians and personnel. A hospital is not required to have therapeutic x-ray facilities.

In the x-ray department, the need for qualified personnel is greatly stressed. Every hospital should have a qualified radiologist, either full-time or part-time on a consultative basis, to both supervise the department and interpret films that require specialized knowledge for accurate reading. Hospitals without the services of a radiologist in any capacity, whose medical staffs read all films themselves, are not considered as rendering high quality care.

The presence of at least one technician registered by the American Registry of X-Ray Technicians is quite necessary in the opinion of the Commission.

The original signed report of an x-ray film interpretation should be filed in the patient's medical record. A duplicate should be filed in the department. An index of x-ray reports according to radiological diagnosis should be kept.

The department should be free from all fire and explosion hazards and the equipment shock-proof. All proper and usual safety measures should be present. Personnel should be checked periodically (two times yearly at least) by blood counts and exposure tests.

Because of the special hazards encountered in the usage of fluoroscopes, radium and isotopes, recommendations emanating from the American Medical Association, the American College of Radiology, the American Hospital Association, and approved by the Commissioners of the Joint Commission on Accreditation of Hospitals, have been synopsized and are reproduced below for guidance and information purposes.

I. a. The use of fluoroscopes and radiographs in the department of radiology in institutions should be limited to members of the staff—either medical or lay—who have been designated as qualified by the radiologist or roentgenologist, and the use of fluoroscopes and radiographs in departments or divisions other than the department of radiology should be limited to members of the staff—either medical or lay—who have been designated as qualified by the radiologist or roentgenologist or appropriately constituted committee.

b. A special sheet should be included in all hospital and clinic charts for data of fluoroscopic examinations specifying date, site, roentgens per minute, exposure time, and operator.

c. All institutions should be requested to use timers on all fluoroscopes.

II. a. The use of radium element, its disintegration products, as well as radioactive isotopes, *shall be under the supervision of a physician* with certification, or its equivalent, in radiology or therapeutic radiology.

b. No one shall be permitted to use radium element, its disintegration products, as well as radioactive isotopes, unless he has been designated as qualified by the radiologist or an appropriately constituted committee.

c. Regulations shall be established, on the recommendation of the medical staff, as to the administration of the application and removal of these materials.

d. Ideally, a department having a supply of radium element, its disintegration products, as well as radioactive isotopes, should have a physicist qualified in radiation physics by the Board of Radiology, preferably as a full-time member of the department; such a physicist to be available in consultation for dosage problems involving radium as well as responsible for the safe housing of radioactive isotopes, the protection of patient and personnel, and the disposal of waste products.

Accreditation of Psychiatric Hospitals

A joint statement was sent by the American Psychiatric Association and the Joint Commission to every mental institution in the United States and Canada announcing that after Jan. 1, 1958, the Joint Commission would survey mental institutions on request. Mental institutions already on the accredited list published by the Joint Commission will automatically be surveyed at the proper time and they will be notified at least two weeks in advance.

Mental institutions never previously surveyed should notify the Joint Commission of their desire for survey. Schedules of surveys are made up months in advance and any request should be in the hands of the Commission before Jan. 1, 1958, to insure survey if possible for the forthcoming year.

Please note the Joint Commission's survey does not eliminate survey by the American Psychiatric Association if so desired and requested.

Publication

Every hospital accredited by the Joint Commission on Accreditation of Hospitals for three years (full accreditation) has been sent a copy of the new pamphlet entitled, "You Can Have Confidence in Your Hospital."

In the future, all hospitals that have been nonaccredited or accredited for one year will be sent a copy when accreditation for three years has been attained.

This pamphlet was prepared for hospitals to use as a device to explain to patients and the community what accreditation means. It is already proving quite successful.

FEDERAL MEDICAL LEGISLATION

First Session, 85th Congress

Tax Deduction for Higher Education

Senator Langer (R., N. D.) proposes, in S. 2479, to amend the Internal Revenue Code, allowing a taxpayer, in calculating his income tax, to deduct from his adjusted gross income amounts paid by the taxpayer during the taxable year for tuition fees, books, and supplies, for himself, his spouse, or a dependent attending college. This bill was referred to the Finance Committee.

Cigarette Labeling

Senator Bennett (R., Utah), in S. 2554, would amend the Food, Drug, and Cosmetic Act by requiring that any package or carton of cigarettes introduced in interstate commerce bear a label containing the following words: "WARNING: Prolonged use of this product may result in cancer in lung, heart, and circulatory ailments, and in other diseases."

Representative Fino (R., N. Y.), in H. R. 8947, proposes to provide "that cigarettes sold in interstate commerce shall be packaged and marked so as to show the nicotine content and the tar content of the cigarettes in each package." Both measures were referred to the Interstate and Foreign Commerce Committee.

Public Health Training and Services

Senators Hill (D., Ala.), Ives (R., N. Y.), Kennedy (D., Mass.), McNamara (D., Mich.), and Cooper (R., Ky.) have introduced, in S. 2580, a measure which would authorize an amount, not to exceed 1 million dollars (out of the 30 million dollars already authorized), to enable the surgeon general to make grants-in-aid under terms and conditions prescribed by regulation. The purpose of the grants would be for the support of public or nonprofit educational institutions which provide comprehensive professional training, specialized consultative services, and technical assistance in the fields of public health and in the administration of state and local public health programs. This measure was referred to the Labor and Public Welfare Committee.

Representative Macdonald (D., Mass.), in H. R. 8862, has introduced a measure identical to that of Senator Humphrey (D., Minn.), in S. 2304, previously reported. These measures would provide "an emergency five-year program of grants and scholarships for post-graduate education in the field of public health." Representative Macdonald would authorize the following appropriations: 1. One million dollars annually to make payments to schools to assist in maintaining and increasing their enrollment of graduate students. These funds could be used for "establishing, maintaining, and enlarging staffs and in maintaining and operating their facilities (including the acquisition of equipment) for such training." Payments would be made on the basis of 15% of the basic operating costs of graduate instruction plus $500 for each full-time student in excess of 30 students, plus $500 for each full-time student in excess of the average past enrollment. The total payment, however, could not exceed 50% of the basic operating costs of the school. 2. One million dollars annually for five years for construction and equipment grants not to exceed 50% of the cost of equipment. 3. A total of $1,500,000 over a six-year period for scholarships. This measure was referred to the Committee on Interstate and Foreign Commerce.

Additives in Food

Representative Wolverton (R., N. J.), in H. R. 8629, has introduced a measure which would prohibit the use of additives in food that have not been adequately tested to establish their safety. The pretesting data would have to be submitted to the Secretary for a reasonable period of time to evaluate such data before the additive could be used. This bill was referred to the Interstate and Foreign Commerce Committee.

Representative Farbstein (D., N. Y.), in H. Res. 311, proposes to "establish a select committee to conduct a full and complete investigation and study of the use of chemicals and other additives in food, medicine, and beverages to ascertain what deleterious effects such chemicals have on human life and health." This bill was referred to the Rules Committee.

Liberalization of Social Security Amendments

Representative Perkins (D., Ky.), in H. R. 8774, proposes to liberalize the Social Security Act to (1) increase the base upon which the social security tax is levied from $4,200 to $6,000 annually; (2) increase the maximum monthly benefits for an individual from $108.50 to $138.50 per month; (3) increase the minimum monthly payments from $30 to $35 per individual; (4) reduce the retirement age

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From the Washington Office of the American Medical Association.

to 60 years for both men and women (the present requirement age is 65 years for men and 62 years for women); (5) reduce to 50 years the age at which widows could receive full benefits; (6) reduce requirements for disability payments to simply the standards for being fully insured, that is, coverage for 40 quarters or one-half the quarters since 1950, with a minimum of 6 quarters (the present law requires that an individual be fully insured, insured currently [1½ years out of previous 3 years] and have been insured 5 out of the previous 10 years) and (7) repeals the section in the present law which requires that a person entitled to disability benefits would have his payments reduced by the amount received from other governmental pension plans or workmen's compensation law or act of physical or mental impairment.

Representative Kean (R., N. J.), in H. R. 8883, would amend the Social Security Act in a number of ways to: (1) include compulsory coverage of physicians under Old Age and Survivors Insurance; (2) provide benefits for dependents during the periods of disability when the worker is unable to engage in substantial gainful activity, equivalent to benefits at retirement (if the worker refused rehabilitation, the benefits to dependents would be denied); (3) authorize payment for rehabilitation services for the disabled worker from the disability trust fund; (4) increase the maximum monthly benefits for covered individuals from $108.50 to $118.50, for married couples without children from $162.80 to $177.25, maximum family benefits would be raised from $200.00 to $271.25, and widows and widowers monthly payments would be raised from $81.40 to $94.80; (5) raise the maximum family benefits for widows and their dependent children from $200.00 to $296.25; (6) raise the base wages subject to tax from $4,200 to $4,800 annually (no increase in rates is proposed; by 1975, the self-employed physician [if by then covered] would pay the scheduled 6⅜% on $4,800 or $306 a year); (7) increase 1% per year over present benefit levels for those who delay retirement beyond 65 years until 72 years of age is reached. Thus, the retired worker who delayed retirement until age 72 could receive an additional $8.33 monthly or a total of $126.83 instead of $118.50. Both measures were referred to the Ways and Means Committee.

Committee to Study Federal-State Grants

Representative Bow (R., Ohio), in H. Res. 302, and Representative Landrum (D., Ga.), in H. Res. 312, have introduced identical measures which propose to create a select committee of the House to study activities in which the federal government extends aid to state and local governments, individual agencies, or to individuals "to determine (1) what justification now exists for Federal aid in any field; (2) and in what fields of activity existing programs of aid should be continued, or increased, or terminated; (3) whether new programs of aid should be started; (4) the impact of Federal grants-in-aid programs upon beneficiary States as to internal politics, economics, administrative structure, and local incentives and independence; (5) the future ability of States and the Federal Government to finance activities usually the subject of such grants; and to make such recommendations as it deems advisable."

Representative Pelly (R., Wash.) proposes, in H. Res. 318, to authorize the Ways and Means Committee to study desirability of discontinuance by the government of levying and collecting certain taxes, giving the states priority in such fields. These bills were referred to the Rules Committee, which reported in favor of H. Res. 312, and increased the members of the select committee from five to nine.

Study Commission on Problems of the Blind

Representatives Wainwright (R., N. Y.), in H. R. 8427, and Elliott (D., Ala.), in H. R. 9055, have introduced identical measures which propose to establish a Presidential Study Commission on Problems of the Blind. This measure has the support of the Administration and would authorize the President to appoint 21 members from among persons with knowledge of and interest in problems of the blind. Leaders in medicine, education, social work, psychology, rehabilitation, and related professions and volunteer agencies and the public would be represented. At least three of the members must be blind persons. The commission would make a broad and comprehensive study of programs and activities relating to blindness and the needs of blind persons. Two hundred thousand dollars annually would be authorized for the expenses of the study, which must be completed in three years. This measure was referred to the Committee on Education and Labor.

Medical Care in Alaskan Military Hospitals

Delegate Bartlett (D., Alaska) has introduced, in H. R. 8944, a measure which would authorize, in the Army and Air Force hospitals and dispensaries outside the continental limits of the United States and in Alaska, the same services, for all military personnel and their dependents and other specified civilians, now given in the naval and Marine Corps medical facilities. The bill would amend the present law to read as follows:

> In addition to those persons, including the dependents of Armed Forces personnel, now authorized to receive hospitalization at Army, Navy, or Air Force hospitals, hospitalization and dispensary service may be provided at Army, Navy, or Air Force hospitals and dispensaries outside of the continental limits of the United States and in Alaska, to officers and employees of any department or agency of the Federal Government, to employees of a contractor with the United States or his sub-contractor, to the dependents of such persons, and in emergencies to such other persons as the Secretary of the military department concerned may prescribe: Provided, That such hospitalization and dispensary service to other than the dependents of the Armed Forces

personnel shall be permitted only where facilities are not otherwise available in reasonably accessible and appropriate non-Federal hospitals. The charge for hospitalization or dispensary service for persons other than dependents of Armed Forces personnel as specified in this section shall be at such rates as the President shall from time to time prescribe, and shall be deposited to the credit of the appropriation or fund for the maintenance and operation of Army, Navy, or Air Force hospitals.

This measure was referred to the Armed Services Committee.

Studies for Older Persons

Representative Flood (D., Pa.) proposes, in H. R. 9025, to authorize, over a six-year period, federal grants of $154,560,000 to states, public and nonprofit institutions, and organizations to assist in the development and operation of studies and projects to help solve the problems of older persons through projects which will help—

(1) older persons to secure gainful employment, including self-employment in their own businesses;

(2) older persons to enjoy retirement income sufficient to support a reasonable and improved standard of living;

(3) provide older persons, so far as possible, the opportunity of living in their own homes, or, if they so desire, in suitable private or public facilities;

(4) older persons to receive adequate preventive and therapeutic medical and dental care, and hospital, surgical, nursing, and other health services;

(5) make voluntary hospital and medical-care-insurance protection available to all older persons;

(6) make available opportunities for rehabilitation which will restore to independent useful lives older persons who are physically or mentally disabled;

(7) provide services such as counseling, information, adult education, vocational retraining, recreation, and social casework for individuals who are planning for retirement or need such services in their later years;

(8) increase research in geriatrics and other aspects of aging; and

(9) train personnel necessary to provide specialized services to older persons in the fields of medicine, dietetics, nursing, psychology, counseling, education, recreation, social work, and in such other fields as will carry out the purposes of this Act.

This measure was referred to the Education and Labor Committee.

Regulation of Hazardous Substances for Household Use

Senator Bush (R., Conn.), in S. 1900, and Representative Williams (D., Miss.), in H. R. 9063, have introduced virtually identical measures t regulate the interstate distribution and sale of packages of hazardous substances intended for household use to insure proper labeling. The labe would carry such words as: "dangerous," "warning," "caution," and "keep this out of the reach o children," and would also suggest first-aid treatmen to minimize injury until medical attention could b secured. These measures were referred to the respective Interstate and Foreign Commerce Committees.

COUNCIL ON MEDICAL SERVICE

HEALTH MAINTENANCE FOR THE OLDSTER

Henry A. Holle, M.D., Austin, Texas

This is the fourth of a series of papers on various aspects of aging. Each paper has been prepared for the Committee on Aging by an authority in the field. When completed, the series will be published in booklet form.

The immediate past-president of the American Medical Association, Dr. Dwight H. Murray, in his address in Chicago last year said: "I sincerely believe that it is Nature's plan that we remain physically and mentally alert to the end of our days." Surely there are none who would dispute the desirability of such a favorable outlook for the future.

It is evident that as time goes on people will live longer. But it is not enough to live so that one might be enabled to wait for death. Life should provide such priceless ingredients as physical and mental health and well-being—the will to live. During the Federal-State Conference on Aging in Washington, D. C., in June 1956, it was stated that the Council of State Governments had compiled a "Bill of Objectives for Older People."

This list included such items as physical and mental health, including rehabilitation; equal opportunity to work; home living; adequate minimum income; participation in community activities; freedom, independence, and initiative. One will observe that these objectives are no different from those to

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Commissioner of Health, Texas State Department of Health.

Members of the Committee on Aging are Drs. H. B. Mulholland, Chairman, Charlottesville, Va.; Edward L. Bortz, Philadelphia; Henry A. Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; Theodore G. Klumpp, New York; Frederick C. Swartz, Lansing, Mich.; and Cecil Wittson, Omaha. Committee Staff: Mr. George W. Cooley, Secretary, and Mr. Herbert B. Norton, Research Assistant.

h any of us would aspire. But, in my judgment, maintenance of physical and mental health is lamental to the other objectives mentioned.

s physicians, we are quick to agree that in health itch in time saves nine." But our attention has too n been drawn away from the person who, for the nent, at least, was not ill. We have concerned elves almost exclusively with those who comned of symptoms and who needed relief. This took of our time. Moreover, we have always been reant to risk being placed in the position of seeming olicit business.

ll of these reasons for our failure to take action in field of health conservation are understandable. we should now take a more positive approach to lth maintenance in our oldsters. Keeping well is portant to all of us. It is the key basic need in older groups. The interest of the apparently well senior zen in his own health has been grossly underestited. Our work is thereby made easier.

or many years we have ignored the so-called deierative or chronic diseases in the elderly. We acoted them as matters of course in the treatment of re acute symptoms. Now our researchers are study g tissue cells to find out why their rate of replacent slows down with increasing age. Who can say it these mysteries will not be solved? Who can say it atherosclerosis may not some day be reversible, at least preventable?

Because of these things, we see a beginning realizan on the part of physicians in practice and in health encies that the development and application of regiens of health maintenance in our oldsters can be mendously productive. If we take this positive apoach to the "stitch in time" philosophy, we may oid being faced with the necessity of doing a comete sewing job later on when it can do little good.

Too much emphasis cannot be placed upon the need r a medical advisor in the middle and senior years. e need here the individual physician-patient relanship. It pays its greatest dividend during the years ien body reserves are dwindling and when advange should be taken by the physician of intimate owledge of the individual patient gained through ars of experience as his medical advisor.

Like the management of diabetes, health maintence in the oldster, or the science of keeping him ell, is a long-range undertaking. It must, of necessity, t be limited to the treatment of symptoms when they ise. The approach must be one of sympathetic undernding of what makes him "tick" and an interest in s over-all health problems. One need not add that must be made to feel that his physician is sincerely terested in him as an individual.

This interest should include such fundamentals of od health as his home; the food he eats; his personal ing and recreation habits; outlook on life and movation for living; and the avoidance of fatigue. Other ticles in this series discuss in more detail a number these keystones of life and health maintenance of e oldster. How then does one keep him well?

Our colleagues in pediatrics have long used the "well baby clinic" as a productive device to insure optimum health maintenance in young children. As yet we have scarcely scratched the surface in utilizing this technique in our senior citizens. The "well oldster clinic," properly managed, will yield a far richer source of things that need doing. The doctor's office is the best place for this activity. The conditions most commonly uncovered are cardiovascular disease, cancer, arthritis and rheumatism, mental diseases, nephritis, glaucoma, diabetes, obesity, anemia, and loss of vision and hearing. Ironically, some of these conditions might well have been the targets in a program of health maintenance during the early and middle years.

In this connection it seems somewhat inconsistent for us to express concern over the health of the preschool child, with a little more attention to his health through the elementary school grades, only to forget about him later. At junior-high-school age, he then is assumed to have achieved an Achilles-like state of physical and mental well-being, receiving no more frequent and directed medical supervision, except during periods of acute illness. Finally, when his body and mind have become worn with the fatigue of a half-century of struggle in a highly competitive and industrialized society, we again express a concern for his infirmities which we refer to as chronic diseases of old age.

The conditions found in the oldster may loom as formidable obstacles to the joy of living unless we begin a carefully managed program of secondary prevention. By secondary prevention we no longer mean the prevention of the condition itself, but rather a regimen to minimize its adverse effect. Secondary prevention is a positive program of hopeful action—a refusal to subscribe to the negative outlook which, in too many minds, is reconciled to the futility of effort.

Those who work with these patients know that the potential harvest of accomplishment is very great. But each case calls for a long-range plan of management, and the physician is the key to its success. The patient must learn to live with what he has left. But the more we are able to conserve his health resources, the more effectively he will be enabled to carry on as an active oldster.

It is not my purpose to describe the clinical procedures which are necessary to achieve health maintenance. Many of the elements of such a program are covered in other articles in this series. Each patient must be managed somewhat differently, according to his own needs. Medical or surgical procedures, if they are necessary, should not be avoided purely on the basis of age.

There should be sufficient flexibility to permit changes in living habits in the light of what develops with the further passage of time. Periodic reappraisals will be necessary and good records are essential. The entire program is designed to provide the maximum activity and participation permissible

Activity and participation in the living process are vital essentials in the life of the older person. Most of us have observed that sudden retirement without adequate preparation is a killer of men. Inactivity breeds depression and loneliness; death, too often, soon follows in their wake. Life must go on and there must be people to share it with; there must be things to do.

Our systems of mandatory retirement based on chronological age are not consistent with our other efforts to conserve human resources. As our methods of measuring productive capabilities of people become objective and reliable, the policy of sudden forced retirement will, in all likelihood, give way to a more gradual reassignment of duties in keeping with variations in the physical and mental aptitudes of individual employees.

We stress productive activity because of its importance to health maintenance in the oldster. This is especially true of mental health. One cannot stand still. As time moves on we either go forward or backward. Unless, over the years, we have prepared for retirement through the development of a hobby or an avocation, the sudden cessation of a lifelong activity makes a disastrous impact on our well being. For these reasons, many oldsters will need to be referred to day-centers for recreational activities or to a so-called sheltered workshop for productive work. The physician will wish to utilize these and other facilities for time consuming educational and ancillary services for his patients.

Public health agencies are giving top priority to chronic diseases, and many other agencies are also providing increased services for the aging. These activities will result in many referrals to private physicians for diagnosis and treatment. It is my hope that we as physicians will meet this challenge through the individualized approach which has distinguished the practice of medicine in the United States.

SPECIAL COMMITTEE ON INFLUENZA

COMMITTEE ON DISEASE REPORTING AND EPIDEMIC SURVEILLANCE

The Surgeon General of the U. S. Public Health Service called a special meeting of state and territorial health officers in Washington, D. C., on Aug. 27-28, 1957, to discuss and otherwise consider national and community plans to cope with Asian influenza. Members of the A. M. A. Special Committee on Influenza participated in the two-day meeting. Here are some of the recommendations adopted by this group.

Frank W. Barton, *Secretary.*

The important laboratory work lies in the substantiation of an epidemic and is of little value to the individual patient. In the identification of an outbreak, throat washings and paired serums should be submitted from at least 12 clinical cases. Accompanying the specimens should be a clinical abstract and data on how specimens were taken. In the face of an explosive outbreak of upper respiratory illness the specimens should be gathered within the first three days of illness and submitted through the state health authority.

Technical information on securing and preparing specimens together with restrictions should be disseminated through state channels. Local health authorities should participate in the evaluation of an epidemic situation in accordance with existing policy.

It is recommended that the several states plan to gather intelligence rapidly regarding the occurrence of pneumonia. Since bacterial identification by sputum specimen is as important as virus diagnosis, it is further recommended that sputum specimens for bacterial study, as well as antibiotic sensitivity, be taken as soon as pneumonia is suspected. The pneumonia rate in the extremes of age should be used as a sensitive index to assess the severity of an epidemic.

It is recommended that each state submit a week ly situation report to the Public Health Service fo operational purposes. It is further recommende that the states adopt a program of (1) epidemi reporting by counties to the states and then to th Public Health Serivce; (2) adoption of a standar method of gathering and reporting information o outbreaks; and (3) sampling of absentee rates i selected schools and industries.

In order to facilitate analysis of data gathere and to aid local, state, and national managemen of the epidemic, states are urged to participate i the proposed Public Health Service surveillance an reporting programs.

It is recommended that as much useful informa tion should be gathered in an epidemic investi gation as possible and should include, but not b limited to, symptoms and etiology as determine by laboratory confirmation on a representativ sampling, complications and mortality, and ag groups involved. Suggested forms for gatherin useful information in organized fashion are bein developed by the subcommittee on epidemic intelligence and the Public Health Service. Therefore these forms are commended to the states for organizing and reporting such information as they are able to obtain.

It is recommended that assistance be provided from the Public Health Service in support of virus laboratories in state health departments to include diagnostic materials and training of laboratory personnel. Further, the providing of aid in epidemiological personnel by the Public Health Service to the states at the latter's request is recommended. The Public Health Service should assist the states by planning for future conferences concerning epidemic progress as seem to be needed.

Committee on Vaccination Promotion

What should be the primary objectives emphasized in vaccination promotion programs?

The primary objective in promoting vaccine programs is to prevent illness and death from epidemic influenza within the limits of available vaccine.

Should there be a system of interstate allocation of influenza vaccine?

We recommend that there be a system of interstate allocation of vaccine based on a voluntary agreement with the manufacturers.

What priorities, if any, should be established for influenza vaccination and how and by whom should these be determined?

RESOLVED that the surgeon general of the Public Health Service recommend to civilian physicians that they give priority to: (1) those individuals whose services are necessary to maintain the health of the community; (2) those individuals necessary to maintain other basic community services; (3) persons with tuberculosis and others who in the opinion of the physician constitute a special medical risk; and be it further

RESOLVED that the Committee on Influenza of the A. M. A. take such action as necessary to assist in implementation of these recommendations.

Whereas other basic community services vary from place to place, be it resolved that each level of government be encouraged to establish advisory committees broadly representative in nature to consider which groups are deemed essential to maintain necessary services.

What recommendations should be made regarding vaccination of children?

Administration of influenza virus vaccine containing the Asian strain is approved for use in children and it may be initiated at about three months of age. From experience with earlier vaccines evidence has been obtained that a somewhat better antibody response can be obtained in children if the vaccination is given in two injections instead of one. The doses recommended are as follows:

For preschool-age children (3 months to 5 years)—0.1 cc. intracutaneously or subcutaneously, repeated after an interval of one to two weeks.

For children 5 to 12 years of age—0.5 cc. subcutaneously, repeated after an interval of one to two weeks. For children of 13 years of age and older, the dose for adults (1.4 cc. subcutaneously in a single injection) may be used.

MEDICINE AND THE LAW

PATIENT'S RIGHT TO PRIVACY

This is the second in a series of six articles dealing with the necessity for and proper format of certain medicolegal forms. The subjects to be covered are (1) consent to operations and other medical procedures; (2) patient's right to privacy; (3) confidential communications and records; (4) artificial insemination; (5) the physician-patient relationship; and (6) autopsy.

This material has been prepared and will be published in book form by the Law Department of the American Medical Association under the title "Medicolegal Forms with Legal Analysis." The book will include extensive legal citations and a substantial number of additional forms which have not been included in this series of articles.—ED.

In recent years there has been a trend among the courts to provide a remedy, in the form of an action in tort, for the violation of an individual's right of privacy. The individual has a right to be "left alone" and not be subject to unwarranted and unwanted publicity, with possible attendant shame, mortification, and humiliation.

A patient has the same right of privacy that any other individual has. He has a right to have information relating to his condition kept secret and not made the subject of publicity. When a patient disrobes for an examination, operation, or any other medical procedure, he does so for the professional benefit of the physician and he does not expect to be subjected to the examination of other persons, medical or nonmedical, who are not necessary to the carrying out of the medical procedure. The admission of nonessential persons, without the specific consent of the patient, constitutes a violation of the patient's right of privacy. Nor does the patient, when he submits to a medical procedure, consent to the taking of his picture for future publication. The unauthorized taking of pictures of the patient, even though they have not been published, will give rise to a cause of action. One of the most frequent violations of a patient's right of privacy is the unauthorized use of his picture. It is immaterial that the patient's condition is made public because it is newsworthy and of interest to the public or that unessential persons are permitted to observe the patient or pictures of the patient are taken and published for the purpose of advancing medical science or educating the public.

The attorney general of New York made the following answer to the state department of health's question whether it could, legally, present an educational exhibit of "before and after" pictures of cancer patients at the state fair: "It is my opinion that you may not legally make use of these photographs for the purpose of public display as set forth in your letter, without the consent of the subjects of the photographs, if they are of living persons. While it is true that the contemplated use may have a distinct social value for the general instruction and information of the public, yet I believe that the unauthorized use of such pictures is barred by the provisions of the statute. . . . The unfortunate person afflicted with a malignant disease such as cancer may very well have a perfectly natural and readily understandable aversion to having a photograph or picture showing his condition displayed before the public." Publicity may be given to the patient's condition, observers may be admitted, and pictures may be taken and published only as specifically consented to by the patient. To facilitate proof, if such should become necessary, the consent should be in writing. It should state specifically just what it is that the patient consents to with respect to observers, pictures, etc. If there are any restrictions or limitations on the consent they must be strictly observed.

In addition to having his right to privacy respected by the physician, the patient has a right to receive from the physician, at all times, decent and respectful treatment.

FORM 1.—*Authority to Admit Observers*

PATIENT'S NAME.. AGE........ DATE........

I hereby grant authority to Dr. ....

and to .... Hospital to permit the presence of such observers as they may deem fit to admit in addition to physicians and hospital personnel, while I am undergoing (operative surgery) (childbirth), examination, and treatment.

Signed..

Witness..

FORM 2.—*Consent to Taking of Photographs*

In connection with the medical services which I am receiving from Dr. ...., I consent that photographs may be taken of me or parts of my body, under the following conditions: (1) The photographs may be taken only with the consent of my physician or surgeon and under such conditions and at such times as may be approved by him. (2) The photographs shall be taken by my physician or by a competent photographer, approved by my physician. (3) *These photographs shall be used for medical records only, unless, in the judgment of my physician, medical research, education, or science will be benefited by their use. In that event I agree that they may be used for such purposes, provided that my identity is not revealed by the photographs or by descriptive texts accompanying them.*

Signed ....

Date ....

....

Witness

FORM 3.—*Consent to Publication of Photographs*

PATIENT.................................. PLACE...................... DATE........

1. I hereby authorize Dr. .... and such assistants, photographers, and technicians as he may engage for this purpose, to take such photographs of me *as he may desire* before, during, and after the operation which is to be performed upon me on or about......................

.... 19........, and to permit such photographs to be published *and republished in professional journals* and medical books or to be used for *any other purpose* which he may deem fit in the interest of medical education, knowledge or research.

2. Authority is further given to permit the modification or retouching of the aforementioned photographs, and to the publication of information relating to my case, either separately or in connection with the publication of the photographs taken of me.

3. Although I give permission to the publication of all details and photographs concerning my case, it is specifically understood that I will not be identified by name.

Signed ....

Witness ....

FORM 4.—*Consent to Televising of Operation*

PATIENT................................ PLACE.................... DATE...........

In the interest of medical education and knowledge, I hereby consent to the televising of the operation which is scheduled to be performed upon me on or about...................

.... 19......... I hereby authorize Dr. ....

and the .... Hospital to admit to the operating room, the cameramen and technicians who are to participate in the televising of this operation, in addition to the usual hospital staff.

Signed ....

Witness ....

FORM 5.—*Consent to Taking of Motion Pictures of Operation*

PATIENT................................ PLACE.................... DATE...........

1. I hereby consent to the taking of motion pictures of the operation which is scheduled to be performed upon me on or about .... 19......... I authorize Dr. .... and the .... Hospital to admit to the operating room, the cameramen and technicians who will participate in the filming of this operation.

2. I hereby and forever waive all rights that I may have to any claims for payment or royalties in connection with any exhibition, televising, or other showing of this motion picture film, regardless of whether such exhibition, televising, or other showing is under philanthropic, commercial, institutional, or private sponsorship, and irrespective of whether a fee of admission or film rental is charged.

3. I grant this consent as a voluntary contribution in the interest of medical education and knowledge and subject only to the condition that I will not be identified by name in this motion picture film.

Signed ....

Witness ....

MEDICAL NEWS

CALIFORNIA

Grants for Cardiovascular Studies.—The American Heart Association, in support of their studies of heart and blood vessel diseases, has awarded grants totaling $149,792 to 24 scientists from California. The awards are among 225 national grants-in-aid totaling $1,395,285. Largest of the grants, $8,600, went to Dr. Arthur Selzer and Dr. Forrest Willett, of Veterans Administration Hospital, Fort Miley, for a fellowship to Dr. David Y. Naruse, of San Francisco, who will do research to clarify the mechanisms responsible for cardiac shock and test the effects of various drugs in overcoming cardiac shock.

Cardiovascular Research Institute.—Dr. Julius H. Comroe Jr. medical researcher and educator, has been named director of the Cardiovascular Research Institute at the University of California Medical Center, San Francisco. Dr. Comroe comes from the University of Pennsylvania Graduate School of Medicine, Philadelphia, where he was chairman of the department of physiology and pharmacology. He has been appointed a professor of physiology on the University of California faculty.

The institute will be devoted to an intensive, many-phased research attack on diseases of the heart and circulatory system. Quarters for the institute are being built on the 13th floor of Herbert C. Moffitt Hospital and are to be ready for occupancy next July. Several research programs are already in progress, however. Dr. Comroe has served on numerous research and advisory committees of scientific organizations and from 1944 to 1946 was a medical research consultant to the Army. In 1956 he became chairman of the Physiology Study Section of the U. S. Public Health Service. He is currently president of the Laennec Society and a councillor of the American Physiological Society.

COLORADO

State Medical Society Meeting.—The 87th annual session of the Colorado State Medical Society will be held Sept. 24-27 at the Shirley-Savoy Hotel, Denver. The presidential address will be given by Dr. Gatewood C. Milligan, of Englewood. Roundtable discussions and luncheons will be held Sept. 25 and Sept. 26. On Sept. 27 "the Practicable Aspects of Professional Liability; A Medicolegal Clinic," will be conducted with Edwin J. Holman, LL.B., Chicago, serving as guest moderator. A special program by the law department of the American Medical Association and the Medicolegal Committee of the Colorado State Medical Society will be held Sept. 27. A symposium on "What Has Been Done in Colorado" will be conducted by Drs. Monroe Tyler, Denver, Henry Thode, Fort Collins, and Mason Light, Gunnison. Entertainment includes a banquet the evening of Sept. 26. Technical exhibits are planned. For information write the Colorado State Medical Society, 835 Republic Building, Denver 2, Colo.

ILLINOIS

Chicago

Research Award.—The Dr. Morris L. Parker award, given annually upon recommendation of the faculty of the Chicago Medical School for meritorious scientific research, was conferred this year on Abraham R. Goldfarb, Ph.D., assistant professor of biochemistry, and Waldemar Dasler, Ph.D., also an assistant professor of biochemistry. Dr. Dasler received the award because of his studies having to do with lathryism. Dr. Goldfarb was given the award because of his work in connection with the isolation of a master chemical in ragweed pollen. The award, $500, was made during the recent commencement.

Clinic for Headache Studies.—A clinic has been opened as part of the Chicago Medical School's neurological clinic at Mt. Sinai Hospital at which studies will be confined to the severe and persistent headache in an attempt to discover its possible relationship to the more severe forms of mental illness. Patients are referred to the clinic only from other departments of the hospital, after preliminary interview in the neuropsychiatric department of the Medical School. After neurological, psychiatric, and physiological tests, they are enrolled in the headache clinic for study and treatment or other type of therapy needed to fit the diagnostic impression. Dr. Louis S. Schlan heads the project. The clinic, made possible by a grant from Sandoz Pharmaceutical Company, will be held Monday mornings from 9:30 to noon.

IOWA

State Academy of General Practice Meeting.—The ninth annual meeting of the Iowa Chapter of the American Academy of General Practice will be held

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Sept. 22-24 at the Savery Hotel, Des Moines. The program includes the following papers by out-of-state speakers:

The Relationship of the GP to Industry, Dr. Charles F. Shook, Toledo, Ohio.
The Postphlebitic Syndrome, Dr. Geza de Takats, Chicago.
Recent Advances in the Etiology of Mild Respiratory Diseases, Dr. Thomas G. Ward, Notre Dame University.
Initial Management of the Seriously Injured Patient, Dr. Claude R. Hitchcock, University of Minnesota, Minneapolis.
Diagnosis of Acute Internal Injuries, Dr. Daniel J. Moos, University of Minnesota.
Surgical Treatment of Varicose Veins and Stasis Ulcers, Dr. Karl Lofgren, Mayo Clinic, Rochester, Minn.

Question and answer periods will follow the formal presentations. Luncheon speakers, Rev. Granger Westburg, Chicago, and Mr. Walter L. Stewart, attorney at law, Des Moines, will speak on "Problems Related to Medicine and Religion," and "Wills, Taxes, and Money," respectively. The E. E. Shaw Memorial Lecture, "Forceps Delivery," will be given by Dr. William C. Keettel, State University of Iowa, Iowa City. A panel discussion, "Obstetric Problems," will be conducted the afternoon of Sept. 24 with Dr. Keettel as moderator. Entertainment includes the annual banquet, Sept. 23. A special ladies' program is planned.

NEW YORK

Conference on Animal Diseases and Health.—"Animal Diseases and Human Health" was the subject of a joint conference of the New York Academy of Sciences and the Communicable Disease Center in New York City, recently. The center is a division of the Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, with headquarters in Atlanta, Ga.

The conference provided a 10-year progress report on the zoonoses. Diseases such as psittacosis, brucellosis, cat scratch fever, rabies, anthrax and encephalitis were reviewed.

Other diseases were discussed from the standpoint of possible relationship to similar conditions in man, such as pulmonary adenomatosis, which is reported to have been decimating sheep flocks in many parts of the world and has several factors in common with lung cancer in humans. For information write Medical and Pharmaceutical Information Bureau, Inc., 115 East 69th St., New York City.

New York City

Tumor Transplantation Techniques.—A three-day session on the techniques and problems associated with the heterologous transplantation of human tumors will be held Oct. 8-10, at the Sloan-Kettering Institute. Besides the lectures, personal opportunity to work with various transplantable human tumors and a variety of animal hosts as well as embryonated eggs will be available. Tissue cultures derived from the transplantable human neoplasms will also be demonstrated. The value of these tumors in various research programs will be discussed. The session will be given by Drs. H. Toolan, David Karnofsky, Alice Moore, George Woolley, J. Harris, and other associates. For information write Helene W. Toolan, Ph.D., Sloan-Kettering Institute, 410 East 68th St., New York City. There will be no charge.

OREGON

General Practice Meeting in Portland.—The 10th annual meeting of the Oregon Academy of General Practice will be held Sept. 26-27 at the Multnomah Hotel, Portland. Luncheon panel discussions will be held at noon on both days. The program includes the following topics by out-of-state speakers:

Certain Aspects of the Control of Inflammatory Conditions in the Urinary Tract, Dr. Ian Thompson, Ann Arbor, Mich.
The Problem of Adenomyosis, Dr. Ralph C. Benson, San Francisco.
Fats, Cholesterol and Atherosclerosis, Dr. Norman Jolliffe, New York City.
Common Errors in Diagnosis of Early Cancer, Dr. N. Frederick Hicken, Salt Lake City.

Technical exhibits are arranged. Guest speaker at the annual banquet, Sept. 26, will be Dr. John S. DeTar, Milan, Mich. For Information write Mrs. Anna Payne, Executive Secretary, Oregon Academy of General Practice, 4942 N. E. Thirty-Fourth Ave., Portland 11, Ore.

PENNSYLVANIA

State Medical Society Meeting.—The 107th annual session of the Medical Society of the State of Pennsylvania will be held Sept. 17-21 at the Penn-Sheraton Hotel, Pittsburgh. Panel discussions and moderators to be presented at the general sessions include the following: Hyperthyroidism, Dr. Isidor S. Ravdin, Philadelphia; Resistant Hospital Infections, Dr. Russel B. Roth, Erie; Use and Misuse of the Hospital Bed, Dr. Samuel P. Harbison, Pittsburgh; Diagnosis and Treatment of Early Heart Failure, Dr. Wendell B. Gordon, Pittsburgh; and Common Precancerous Lesions, Dr. John W. Shirer, Pittsburgh. The following papers will be presented by out-of-state speakers:

Peptic Ulcer, Dr. Keith S. Grimson, Durham, N. C.
Hypnosis and Its Medical Indications, Dr. William S. Kroger, Evanston, Ill.
Drug Addiction, Dr. Guy H. Williams, Cleveland.
Cardiac Surgery, Dr. Alfred Blalock, Baltimore.
Carcinoma of the Colon, Dr. Richard K. Gilchrist, Chicago.
The Clinical Spectrum of Pyelonephritis, Dr. George E. Schreiner, Washington, D. C.

Question and answer periods will follow the formal presentations. Scientific and technical exhibits are planned. Entertainment includes a golf tournament and dinner, Sept. 16. A special ladies' program has been arranged. For information write Dr. Harold B. Gardner, 230 State St., Harrisburg, Pa.

GENERAL

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Aug. 17, 1957		Aug. 18, 1956
	Paralytic Type	Total Cases	Total Cases
New England States			
Maine	...	...	...
New Hampshire	...	...	...
Vermont	...	...	...
Massachusetts	...	...	9
Rhode Island	...	...	...
Connecticut	...	1	7
Middle Atlantic States			
New York	...	5	45
New Jersey	...	5	12
Pennsylvania	...	3	7
East North Central States			
Ohio	8	17	33
Indiana	9	19	34
Illinois	9	20	180
Michigan	5	47	62
Wisconsin	1	32	33
West North Central States			
Minnesota	...	2	16
Iowa	...	8	52
Missouri	4	10	21
North Dakota	...	...	2
South Dakota	...	4	3
Nebraska	...	3	7
Kansas	...	5	12
South Atlantic States			
Delaware	...	...	1
Maryland	...	...	2
District of Columbia	5	7	...
Virginia	...	2	13
West Virginia	...	2	7
North Carolina	4	22	23
South Carolina	...	4	11
Georgia	6	6	13
Florida	...	...	18
East South Central States			
Kentucky	5	7	15
Tennessee	...	7	14
Alabama	...	2	3
Mississippi	2	5	13
West South Central States			
Arkansas	1	3	11
Louisiana	2	6	35
Oklahoma	1	5	10
Texas	6	21	45
Mountain States			
Montana	...	...	2
Idaho	1	1	3
Wyoming	...	1	1
Colorado	...	...	11
New Mexico	4	6	6
Arizona	1	2	6
Utah	...	...	7
Nevada	...	...	...
Pacific States			
Washington	...	1	17
Oregon	...	...	7
California	7	28	65
Territories and Possessions			
Alaska	...	...	1
Hawaii	...	...	1
Puerto Rico	4	4	...
Total	85	323	896

Winners of Ophthalmology Fellowships.—Five additional physicians who are beginning their residency training in ophthalmology have been announced as the 1957 winners of fellowships provided by the Ophthalmology Scholarship Fund of the Guild of Prescription Opticians of America, Inc. Each fellow will receive $1,800 paid in monthy stipends over the three years of residency training. This year's fellowship recipients and the institution in which each will serve his residency are: Dr. Donald P. Tucker, of Erie, at Massachusetts Eye and Ear Infirmary, Boston; Dr. Milton Boniuk, of Glace Bay, Nova Scotia, Canada, at Wills Eye Hospital, Philadelphia; Dr. Henry T. Edmondson Jr., of Pineview, Ga., at the Medical College of Georgia, Augusta; Dr. John A. Emerson, of Delray Beach, Fla., at Northwestern University Medical School, Chicago; and Dr. George K. Edwards, of Sudbury, Ontario, at Royal Victoria Hospital, Montreal.

CORRECTION

Micrococcic Infections.—In the article "Micrococcic (Staphylococcic) Infections in a General Hospital," in the Aug. 17 issue of The Journal, pages 1733-1739, the first sentence in the last paragraph of the summary should have read "Most of the micrococcic infections which appeared during hospitalization or shortly after discharge were probably the result of cross-infection within the hospital." As printed, the word "probably" was inadvertently omitted.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 17-19. Sec., Dr. D. G. Gill, State Office Building, Montgomery 4.

Arizona:° *Examination and Reciprocity.* Phoenix, Oct. 16-18. Exec. Sec., Mr. Robert Carpenter, 826 Security Bldg., Phoenix.

Arkansas:° *Examination and Reciprocity.* Little Rock, Nov. 7. Sec., Dr. Joe Verser, Harrisburg.

California: *Written Examination.* Sacramento, Oct. 21-24. *Oral Examination.* San Francisco, Nov. 16; *Oral and Clinical for Foreign Graduates.* San Francisco, Nov. 17. Sec., Dr. Louis E. Jones, 1020 N St., Sacramento 14.

Colorado:° *Reciprocity.* Denver, Oct. 8. *Examination.* Denver, Dec. 3-4. Exec. Sec., Mrs. Beulah H. Hudgens, 715 Republic Bldg., Denver 2.

Connecticut:° *Examination.* Hartford, Nov. 12-14. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic. Examination.* Derby, Sept. 10. Sec., Dr. Donald A. Davis, Derby.

Delaware: *Examination.* Dover, Jan. 14-16. *Reciprocity.* Dover, Jan. 23. Dr. Joseph S. McDaniel, Professional Bldg., Dover.

District of Columbia:° *Reciprocity.* Washington, Sept. 9. *Examination.* Washington, Nov. 12-13. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington, D. C.

Florida:° *Examination.* Miami, Nov. 24-26. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Georgia: *Examination.* Atlanta, Oct. 8-9. *Reciprocity.* Atlanta, Oct. 10. Sec., Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

Idaho: *Examination and Reciprocity.* Boise, Jan. 13-15. Ex. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Iowa:° *Examination.* Des Moines, Dec. 2-4. Exec. Sec., Mr. Donald V. Saf, State Office Building, Des Moines 19.

Kentucky: *Examination.* Louisville, Dec. 9-11. Sec., Dr. Russell E. Teague, 620 South Third St., Louisville 2.

Maine: *Examination.* Portland, Nov. 12-14. *Reciprocity.* Portland, Nov. 12. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Reciprocity.* Baltimore, September. *Examination.* Baltimore, Dec. 10-13. Sec., Dr. Frank K. Morris, 1211 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, Jan. 14-17. Sec., Dr. Robert C. Cochrane, 37 State House, Boston.

Michigan:° *Examination.* Lansing, Oct. 9-11. Exec. Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing 8.

Minnesota:° *Examination and Reciprocity.* Minneapolis, Oct. 15-17. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

Montana: *Examination and Reciprocity.* Helena, Oct. 1-2. Sec., Dr. Thomas L. Hawkins, 555 Fuller Ave., Helena.

Nebraska:° *Examination.* Omaha, June. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

New Hampshire: *Examination and Reciprocity.* Concord, Sept. 11-13. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, Oct. 15-18. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.

New Mexico:° *Examination and Reciprocity.* Santa Fe, Nov. 18-19. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York and Syracuse, Dec. 10-13. Sec., Dr. Stiles D. Ezell, 23 South Pearl St., Albany 7.

North Carolina: *Endorsement.* Morehead City, Oct. 12. Asst. Sec., Mrs. Louise J. McNeill, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 9-12. *Reciprocity.* Grand Forks, Jan. 12. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Endorsement.* Columbus, Oct. 1. *Examination.* Columbus, Dec. 17-19. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oklahoma: *Examination.* Oklahoma City, Dec. 14-15. Sec., Dr. E. L. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon:° *Reciprocity and Endorsement.* Portland, Oct. 3-5. *Examination.* Portland, January. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Rhode Island:° *Examination.* Providence, Oct. 3-4. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, Dec. 10. Sec., Dr. H. E. Jarvey, Jr., 1329 Blanding St., Columbia.

South Dakota:° *Examination.* Sioux Falls, Jan. 21-22. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:° *Examination.* Memphis, Sept. 25-26. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

Texas:° *Examination and Reciprocity.* Fort Worth, Dec. 5-7. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July 9-11. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: *Reciprocity.* Richmond, Dec. 4. *Examination.* Richmond, Dec. 5-7. Address: Office of the Secretary, 631 First St., S.W., Roanoke.

Washington:° *Examination.* Seattle, Jan. 13-15. Sec., Mr. Thomas A. Carter, Capitol Bldg., Olympia.

West Virginia: *Reciprocity.* Charleston, Oct. 7. *Examination.* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:° *Reciprocity.* Madison, Oct. 18. *Examination.* Madison, January. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination and Reciprocity.* Cheyenne, Sept. 30, Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:° On application in Anchorage and Juneau. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: *Subject to Call.* Act. Sec., Dr. S. F. Provencher, Agana.

Hawaii: *Examination.* Honolulu, Jan. 13-14. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Virgin Islands: *Examination.* St. Thomas, Nov. 13. Sec., Dr. Earle M. Rice, Charlotte Amalie, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination.* Tucson, Sept. 17. *Reciprocity,* Tucson, Sept. 19. Sec., Mr. Herman E. Bateman, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, Oct. 7-8. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

Connecticut: *Examination.* New Haven, Oct. 12. Exec. Asst., Mrs. Regina G. Brown, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 21-22. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington, D. C.

Florida: *Examination.* Gainesville, Nov. 9. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Iowa: *Examination and Reciprocity.* Des Moines, Oct. 8. Sec., Dr. Elmer W. Hertel, Waverly.

Michigan: *Examination.* Ann Arbor and Detroit, Oct. 11-12. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., West Michigan Ave., Lansing.

Minnesota: *Examination.* Minneapolis, Oct. 1-2. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

New Mexico: *Reciprocity.* Santa Fe, Sept. 29. *Examination.* Santa Fe, Oct. 20. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination.* Oklahoma City, Sept. 27-28. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

South Dakota: *Examination.* Vermillion, Dec. 6-7. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Sept. 25-26. Sec., Dr. O. W. Hyman, 62 South Dunlap St., Memphis 3.

Texas: *Examination.* Austin, October. Chief Clerk, Miss Pearl A. Barrera, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Madison, Sept. 20 and Milwaukee, Dec. 7. Sec., Mr. William H. Barber, 621 Ransom St., Ripon.

°Basic Science Certificate required.

GOVERNMENT SERVICES

AIR FORCE

Hospital Accreditation Program.—At the close of the 1957 fiscal year, the Air Force has 45 hospitals which are accredited by the Joint Commission on Accreditation of Hospitals—41 within the United States and 4 overseas. During the period of Jan. 1 through June 30, 1957, several of these hospitals underwent a periodic resurvey for an additional three years of accreditation and none of these failed to maintain their accreditation.

ARMY

New Student Dietitian Program.—The chief of the Army Medical Specialist Corps has announced a new Army Student Dietitian Program for women students of home economics. Under this program, which will become effective for the 1957 fall school term, students receive over $200 a month through their last year or two years of college education.

While completing the requirements for a bachelor's degree under this program, students are enlisted in the Women's Army Corps Reserve. On graduation the students are commissioned as second lieutenants in the Army Medical Specialists Corps with the opportunity to participate in the Army dietetic internship. The completion of these two educational programs enables students to be professionally qualified as hospital dietitians.

Obligatory active duty service as a commissioned officer in the Army Medical Specialist Corps for students who participate in these combined programs depends on the amount of time spent in college under the Army's sponsorship. If 12 months or less are spent in a civilian institution, 24 months active service as a commissioned officer are required; if over 12 months, but not more than 24 months, are sponsored in a college, 36 months on active duty are required by the Army.

Additional information may be obtained from the Surgeon General's Office, Department of the Army, Washington 25, D. C., Attention: Personnel Division.

NAVY

Dr. Karsner Honored.—Dr. Howard T. Karsner, medical research advisor to the surgeon general, was elected honorary president of the International Society for Geographic Pathology at the sixth conference of the society in Paris, July 9 through 11. This nongovernmental group aims to study the relations which might exist between diseases and the geographical areas in which they occur.

VETERANS ADMINISTRATION

Rehabilitation of Paraplegics.—A pamphlet, entitled "Occupations of Paraplegic Veterans of World War II and Korea"—the first major study ever attempted of the work experience of paralyzed veterans—is now available through the U. S. Government Printing Office in Washington, D. C., at 35 cents a copy. The Veterans Administration will use it in counseling and planning the vocational rehabilitation training of disabled veterans. It also should be useful to all in the field of rehabilitation and employment of the handicapped, as well as to the handicapped themselves. In a foreword Harvey V. Higley called the study "a vivid demonstration of the resiliency of man, of his tremendous ability to adapt his life to the limitations of a severe physical handicap. . . . Ability is not confined to the able bodied. The disabled, too, can contribute to America, if only they are given the opportunity to do so."

Personal.—Dr. John J. Blasko, former Connecticut commissioner of mental health, has been appointed chief of the VA psychiatry division in the Psychiatry and Neurology Service, Washington, D. C., succeeding Dr. Stewart T. Ginsberg, who left to become commissioner of mental health for Indiana. Dr. Blasko, who served as chief of psychiatric training at the VA Central Office from March, 1952, to May, 1954, is certified in psychiatry by the American Board of Psychiatry and Neurology.

PUBLIC HEALTH SERVICE

Grants for Training Health Workers.—The Public Health Service announced on July 19 the award of grants and awards totaling $1,020,143 to 230 persons, including physicians, engineers, health educators, laboratory workers, dentists, and members of other health professions who will enter colleges and universities this fall for a year of training in public health aspects of their professions. Grants totaling $919,878 also were made to 44 colleges and universities offering public health nursing courses and to 11 schools of public health to assist in the training of students whom the schools select.

This is the second year that public health training funds have been available from the federal government. Last year, under a one million dollar appropriation, the traineeship grants and awards financed the training of 364 public health workers. The purpose is to help relieve the acute personnel shortages in state and local health agencies. In selecting trainees, consideration is given to the professional categories in which personnel shortages are most acute, the age of the candidates, their previous training and experience, and other factors which will increase the supply of young, well-trained workers.

DEATHS

Tonney, Frederick Oscar, Chicago; born in Vinton, Iowa, March 7, 1881; Illinois Medical College, Chicago, 1909; director of laboratories and research for the Chicago Health Department from 1909 to 1931, when he became assistant commissioner in charge of laboratories, serving until 1938; medical officer, Federal Trade Commission, Washington, D. C., 1938-1939; served as director of the City-County Health Department, Escanaba, Delta County, Mich., state health officer for Northern Illinois, District number 2, comprising Lake, McHenry, and Boone counties with offices at Woodstock and Waukegan, Ill., city-county health officer, Mansfield, Richland County, Ohio, medical director, Shelby-Effingham Bi-county Department of Health, Shelbyville, Ill., and health officer, Victoria and Cameron Counties, Texas; on the staff of the Ravenswood Hospital, where he died July 11, aged 76, of bilateral pyelonephritis.

Zillessen, Frederick Otto ⊕ Philadelphia; born in Passaic, N. J., Sept. 16, 1902; University of Pennsylvania School of Medicine, Philadelphia, 1926; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pathology; member of the College of American Pathologists; founding fellow of the American Society of Clinical Pathologists; fellow of the American College of Physicians; past-president of the Pennsylvania Association of Clinical Pathologists; formerly vice-president of the Northampton County Medical Society; served as fellow in pathology at the Mayo Foundation, Rochester, Minn.; from 1931 to 1947 pathologist and pathological consultant at Easton (Pa.) Hospital, Warren Hospital, Phillipsburg, N. J., and Monroe County General Hospital, East Stroudsburg; director of laboratories at Jeanes Hospital; died June 1, aged 54, of coronary atherosclerosis.

Brockman, James Manning ⊕ Memphis, Tenn.; born in Chattanooga Aug. 9, 1903; University of Tennessee College of Medicine, Memphis, 1928; assistant professor of obstetrics and gynecology at his alma mater; specialist certified by the American Board of Obstetrics and Gynecology; member of the Southeastern Surgical Congress and the Endocrine Society; fellow of the American College of Surgeons and the International College of Surgeons; veteran of World War II; on the courtesy staff, Baptist Memorial Hospital; consultant in gynecology, St. Joseph Hospital and Le Bonheur Children's Hospital; attending gynecologist, John Gaston Hospital; attending gynecologist and chairman of the department of gynecology, Methodist Hospital, where he died June 17, aged 53, of ventricular fibrillation and coronary arteriosclerosis.

Webb, Walter Duval ⊕ Colonel, U. S. Army, retired, St. Augustine, Fla.; born in Mankato, Minn., June 15, 1872; Columbia University College of Physicians and Surgeons, New York City, 1895; veteran of the Spanish-American War and World War I; entered the medical corps of the U. S. Army in 1900; retired with the rank of major in January, 190 returned to active duty from February, 1917, t September, 1918; retired with the rank of colone under the Act of June 21, 1930; returned to activ duty in December, 1940, to August, 1946; durin World War II head of the medical department fo Selective Service in the State of Florida; life member of the American College of Surgeons; formerl on the faculty of Georgetown University School o Medicine in Washington, D. C.; died June 12, age 84, of coronary heart disease.

Parsons, Frederick William, New York City; bor in Buffalo Nov. 13, 1875; University of Buffal School of Medicine, 1901; an associate member o the American Medical Association; specialist cert fied by the American Board of Psychiatry an Neurology; fellow of the American Psychiatric Association; member of the Association for Researc in Nervous and Mental Disease; for many yea state commissioner of mental hygiene; entered th state hospital service in 1902 as a member of th staff of the Hudson River State Hospital in Poughkeepsie, where he remained until 1919, when h was appointed superintendent of the Buffalo Stat Hospital; veteran of World War I; died in th French Hospital July 5, aged 81, of arterioscleroti heart disease and cerebral thrombosis.

Burch, Frank Earl ⊕ Two Harbors, Minn.; born i Menominee, Wis., March 27, 1876; University o Minnesota College of Medicine and Surgery, Minneapolis, 1897; professor emeritus of ophthalmolog and otolaryngology at the University of Minnesota Medical School; specialist certified by th American Board of Ophthalmology; member an past-president of the American Academy of Ophthalmology and Otolaryngology; member of th American Ophthalmological Society; fellow of th American College of Surgeons; veteran of Worl War I; served on the staff of the Charles T. Miller Hospital in St. Paul; died in Duluth, Minn., July 1, aged 81, of arteriosclerotic heart disease.

Willson, Prentiss ⊕ Venice, Fla.; born in Fredonia, N. Y., Aug. 2, 1882; Georgetown University School of Medicine, Washington, D. C., 1905; formerly

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⊕ Indicates Member of the American Medical Association.

practiced in Washington, D. C., where he was on the faculty of his alma mater, and on the staffs of the Georgetown University Hospital and the Columbia Hospital for Women and Lying In Asylum; veteran of World War I; past-president of the Medical Society of the District of Columbia; Georgetown Clinical Society, the Clinico-Pathological Society, and the Washington Gynecological Society; specialist certified by the American Board of Obstetrics and Gynecology; died June 25, aged 74, of cerebral hemorrhage.

Wolfe, Stanley George ⊕ Shreveport, La.; born in Shreveport Nov. 6, 1905; University of Texas School of Medicine, Galveston, 1932; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; fellow of the American College of Physicians; past-president of the Louisiana State Society; formerly vice-president of the Tri-State Medical Society; served as chief of pediatrics service at Confederate Memorial Medical Center, and on the staffs of the Highland Hospital, North Louisiana Sanitarium, and T. E. Schumpert Memorial Sanitarium; died in Philadelphia June 22, aged 51.

Thornton, Lawson ⊕ Atlanta, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1910; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; veteran of World War I; on the staffs of Piedmont Hospital, St. Joseph's Infirmary, and Grady Hospital; died June 26, aged 73, of cerebral hemorrhage.

Van Leuven, Buell Hitchcock, Empire, Mich.; Detroit College of Medicine and Surgery, 1915; fellow of the American College of Physicians; at one time mayor of Petoskey, Mich., director of the Grand Traverse County (Mich.) Health Department, and consultant for the state department of vocational rehabilitation; formerly member of the staff of James Decker Munson Hospital, Traverse City, where he died June 18, aged 69, of myocardial infarction and arteriosclerotic heart disease.

Arnovitz, Emanuel Morris ⊕ Granite City, Ill.; St. Louis University School of Medicine, 1924; veteran of World War I; on the staffs of the Missouri Baptist Hospital, St. Louis, and St. Elizabeth Hospital, where he died July 8, aged 60, of uremia, nephrosclerosis and osteomyelitis of the vertebrae.

Atkinson, Newell Wrigley, Alice, Texas; University of Texas School of Medicine, Galveston, 1898; died July 5, aged 81.

Bacon, Otis Guy ⊕ Frederick, Okla.; University of Louisville (Ky.) Medical Department, 1907; veteran of World War I; died July 6, aged 76, of intestinal obstruction.

Baskett, Roy Frederick ⊕ Texarkana, Ark.; Washington University School of Medicine, St. Louis, 1924; veteran of World War I; on the staff of St. Michael's Hospital; died May 19, aged 58, of cerebral hemorrhage.

Brady, Charles Joseph ⊕ Lake Geneva, Wis.; University of Wisconsin Medical School, Madison, 1934; veteran of World War II; died in the Lakeland Hospital, Elkhorn, July 11, aged 53.

Brady, Thomas S. ⊕ Bayonne, N. J.; Fordham University School of Medicine, New York City, 1919; served as Hudson County assistant medical examiner; on the staff of the Bayonne Hospital; died July 6, aged 59.

Branon, Anthony William ⊕ Old Saybrook, Conn.; Jefferson Medical College of Philadelphia, 1913; fellow of the American College of Surgeons; veteran of World War I; an honorary member of the staff, Hartford (Conn.) Hospital; member of the Chamber of Commerce and the Rotary Club; died July 3, aged 69, of coronary disease and arteriosclerosis.

Brown, Harry Abed, Lehman, Pa.; Medico-Chirurgical College of Philadelphia, 1903; an associate member of the American Medical Association; served as deputy coroner of Lehman and Lake townships; on the staff of the Nesbitt Memorial Hospital; for many years treasurer of the school board; died June 12, aged 79, of cancer of head of the pancreas.

Brown, William Riley ⊕ Ogden, Utah; University of Illinois College of Medicine, Chicago, 1913; fellow of the American College of Surgeons; veteran of World War I; associated with Dee and St. Benedict's hospitals; died June 7, aged 68, of myocardial infarction and arteriosclerotic heart disease.

Brownell, Clifford White, Sussex, N. J.; Long Island College Hospital, Brooklyn, 1910; served as president of the Alexander Linn Hospital; died in the Orange (N. J.) Memorial Hospital June 15, aged 71.

Bundy, Erwin Stillman, Southington, Conn.; University of Vermont College of Medicine, Burlington, 1913; school physician for many years; died in the Bradley Memorial Hospital July 3, aged 68.

Burnside, Raymond Alexander ⊕ Des Moines, Iowa; State University of Iowa College of Medicine, Iowa City, 1923; on the staffs of the Mercy and Lutheran hospitals; died June 23, aged 65.

Calhoun, Hazen Albert Jr. ⊕ Higganum, Conn.; Tufts College Medical School, Boston, 1934; veteran of World War II; died in Watertown, Mass., June 7, aged 50, of coronary thrombosis.

Caraker, Charles Tobias Jr., Perry, Fla.; Atlanta Medical College, 1914; veteran of World War I; died June 13, aged 67.

Chadwick, Suzanne ⊕ Bronxville, N. Y.; Cornell University Medical College, New York City, 1948; certified by the National Board of Medical Examiners; on the staffs of the Lawrence Hospital in Bronxville and the White Plains (N. Y.) Hospital, where she died June 27, aged 34, of Laennec's cirrhosis.

Chesbrough, Phrania, Atlanta, Ga.; Ensworth Medical College, St. Joseph, Mo., 1899; for many years practiced in Willoughby, Ohio; died July 6, aged 86, of septicemia and arteriosclerosis.

Chesnutt, James H. ⊕ Hot Springs National Park, Ark.; Johns Hopkins University School of Medicine, Baltimore, 1907; past-president of the Garland County Medical Society; past-chairman of St. Joseph's Hospital staff on which he served for many years; died June 8, aged 77, of acute coronary occlusion.

Chronik, Joseph B., Dunedin, Fla.; Temple University School of Medicine, Philadelphia, 1921; for many years practiced in Columbus, Ohio; died near Chillicothe, Ohio, June 19, aged 62, in an automobile accident.

Church, Lee O., Pelahatchie, Miss.; Illinois Medical College, Chicago, 1908; veteran of the Spanish-American War; died in the Veterans Administration Hospital, Jackson, June 26, aged 80.

Ciampolini, Ettore, New Haven, Conn.; Boston University School of Medicine, 1916; died in the Littleton (N. H.) Hospital June 27, aged 80.

Clark, Earl Finley ⊕ Belle Plaine, Kan.; University of Kansas School of Medicine, Kansas City, 1910; past-president of the Sumner County Medical Society; a veteran of World War I; died in the Veterans Administration Hospital, Wichita, June 2, aged 77.

Cobb, Elliott Cunningham, Davenport, Iowa; University of Nebraska College of Medicine, Omaha, 1913; fellow of the American College of Surgeons; past-president of the Woodbury County Medical Society; veteran of World War I; died June 10, aged 69, of cancer of the stomach.

Cooke, Grady Carlyle, Morehead City, N. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; specialist certified by the American Board of Surgery; member of the Medical Society of the State of North Carolina; fellow of the American College of Surgeons; formerly practiced in Winston-Salem; on the staff of the Morehead City Hospital, where he died July 7, aged 63.

Cook, Norman Lyle ⊕ Cape Girardeau, Mo.; Jefferson Medical College of Philadelphia, 1933; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; veteran of World War II; on the staffs of St. Francis and South East Missouri hospitals; died June 26, aged 50.

Corrigan, John Francis ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1913; fellow of the American College of Surgeons; for many years on the staff of St. Alexis Hospital, where he died June 24, aged 68, of myocardial infarction.

Cox, Ernest Harper ⊕ Cleveland; Western Reserve University Medical Department, Cleveland, 1905; fellow of the American College of Surgeons; on the staff of the Women's Hospital; died June 9, aged 78.

Coyne, Douglas Ruthven ⊕ Detroit; University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1924; member of the American Academy of General Practice; died in the Ford Hospital June 1, aged 58.

Cramer, Ray D., Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1936; died in the Germantown Hospital June 16, aged 45.

Crawford, Clyde Houston, Bartlett, Texas; University of Nashville (Tenn.) Medical Department, 1905; served as city health officer; died in Carlsbad, N. M., June 21, aged 77, of arteriosclerotic heart disease.

Daniel, James Wallace ⊕ Claxton, Ga.; Atlanta Medical College, 1894; served as state senator and as chairman of the county board of health; died June 25, aged 85, of coronary thrombosis.

Daniels, Frank Marion Jr. ⊕ Greenville, S. C.; Medical College of Georgia, Augusta, 1932; member of the American Academy of General Practice; associated with the St. Francis Hospital and the Greenville General Hospital, where he died June 27, aged 49, of heart failure.

Olson, William Paul, Los Angeles; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; died April 16, aged 70, of cerebral hemorrhage.

Packard, Lawrence Ralph, Whitehall, Mont.; Northwestern University Medical School, Chicago, 1900; an associate member of the American Medical Association; served as mayor; died July 1, aged 80, of diabetes mellitus and myocarditis.

Perry, Robert Edward ⊕ Greensboro, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1921; died in the Wesley Long Hospital June 23, aged 61, of myocardial insufficiency.

Phaneuf, Josephat Stanislas Policarp ⊕ Brockton, Mass.; College of Physicians and Surgeons, Boston, 1913; died June 30, aged 69, of cerebral embolism and auricular fibrillation.

Pinson, Jacob David ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1924; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; on the staff of the Albert Einstein Medical Center, Northern Division; died in Ventnor, N. J., July 4, aged 59, of acute coronary occlusion.

Porter, George B., Lathrop, Mo.; University Medical College of Kansas City, Mo., 1900, died in the Memorial Hospital, Corpus Christi, Texas, May 11, aged 80, of adenocarcinoma of the lung.

Proctor, Benona Jones, Los Angeles; Rush Medical College, Chicago, 1926; died in Newhall, Calif., June 28, aged 59, of coronary occlusion.

Rainsford, Laurence Frederick, White Plains, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1909; died in the White Plains Hospital July 4, aged 76, of myocardial infarction and coronary sclerosis.

Reitzel, Claude Everett, High Point, N. C.; Atlanta College of Physicians and Surgeons, 1902; member of the Medical Society of the State of North Carolina; on the staff of the High Point Memorial Hospital, where he died June 19, aged 77, of myocardial infarction and arteriosclerosis.

Rhudy, George Garland ⊕ Roanoke, Va.; Medical College of Virginia, Richmond, 1915; died near Strasburg, Colo., June 20, aged 68.

Ross, Horace B. ⊕ Del Rio, Texas, Atlanta Medical College, 1895; served as city and county health officer; formerly associated with the U. S. Public Health Service; on the staff of the Del Rio Hospital; died June 10, aged 88, of arteriosclerosis.

Ross, Howard Albertus, Longview, Texas; University of Texas School of Medicine, Galveston, 1909; served on the Carthage and Longview school boards; died June 26, aged 77, of hypertensive heart disease.

Roth, Irving R. ⊕ New York City; Long Island College Hospital, Brooklyn, 1917; specialist certified by the American Board of Internal Medicine; member of the American College of Gastroenterology; formerly on the faculty of the New York Polyclinic Medical School and Hospital; consulting cardiologist at the Mount Sinai Hospital and the U. S. Public Health Service; died June 25, aged 71, of cerebral vascular accident.

Rothkugel, Paul R., Philadelphia; Medico-Chirurgical College of Philadelphia, 1908; long time district medical supervisor with the board of education; associated with Jewish Hospital. now the Northern Division of Einstein Medical Center; died in the Norristown (Pa.) State Hospital June 20, aged 70, of arteriosclerosis.

Rouse, Benjamin H., Le Roy, Kan.; Loyola University School of Medicine, Chicago, 1919; on the staff of the Coffey County Hospital, Burlington, where he died June 25, aged 70, of coronary disease.

Salvin, Monte ⊕ Beverly Hills, Calif.; Jefferson Medical College of Philadelphia, 1928; died June 18, aged 54, of nephritis.

Schwabland, William Tecumseh, Los Angeles; Sioux City (Iowa) College of Medicine, 1901; died June 20, aged 80.

Shack, David N., Newark, N. J.; Baltimore Medical College, 1910; served on the New Jersey Compensation Board and the city board of health; on the courtesy staff of the Beth Israel Hospital; died July 5, aged 71, of cerebral hemorrhage.

Shapiro, Robert, New York City; University and Bellevue Hospital Medical College, New York City, 1915; member of the Medical Society of the State of New York; died June 19, aged 64, of coronary disease.

Shea, William Edward, San Francisco; George Washington University School of Medicine, Washington, D. C., 1905; veteran of World War I and received from Gen. John J. Pershing a special medal for his services; on the staff of St. Mary's Hospital; died June 25, aged 76, of coronary occlusion and arteriosclerosis.

Sisson, Sanford S., Jacksonville, Fla.; Kentucky University Medical Department, Louisville, 1902; died June 19, aged 79, of pulmonary congestion and cardiac failure.

Strickler, Mary E. Ranson, Burlingame, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1898; for many years practiced in Sleepy Eye, Minn.; died June 21, aged 84, of heart failure.

Smith, E. Florence Stir, Newark, Ohio; Laura Memorial Woman's Medical College, Cincinnati, 1901; Eclectic Medical Institute, Cincinnati, 1904; died June 27, aged 86.

Stennis, James H. ⊕ Mathiston, Miss.; Memphis (Tenn.) Hospital Medical College, 1898; died June 26, aged 84, of cerebral hemorrhage.

Stewart, Vida Odessa, Anguilla, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1907; died June 27, aged 73.

FOREIGN LETTERS

BRAZIL

Fatty Infiltration of the Liver After Portocaval Anastomosis.—Portocaval anastomosis is performed in the treatment of patients with hepatic cirrhosis, but it may cause some alterations in the physiology of the liver. Some of these alterations are not yet well understood, as, for instance, the fatty infiltration of the organ and its incapacity for parenchymal regeneration. In order to diminish these undesirable effects arterialization of the liver at the time of portocaval anastomosis has been proposed. Goffi and Gonçalves (*Rev. paulista med.* 50:317, 1957) reported a study of 30 dogs divided into three groups: the 13 animals of the first group were subjected to simple portocaval anastomosis; the 7 of the second group to portocaval anastomosis and aortoportal anastomosis; and the remaining 10 were used as controls. The degree of deposition of fat in the liver was studied in the three groups of dogs by histological examination and by the total amount of fatty acids in the liver. The authors concluded that terminolateral portocaval anastomosis permits a variable amount of fatty infiltration in the liver. The combining of aortoportal shunt and terminolateral portocaval anastomosis helps to diminish the frequency of the occurrence of the fatty infiltration of the liver.

Mast Cells.—The possible participation of mast cells in the pathogenesis of such disorders as thrombosis, atherosclerosis, and hemorrhage led Dr. Paulo S. Lacaz and co-workers (*Rev. brasil. cir.* 33:1, 1957) to study the functions attributed to these cells, namely, production of heparin, histamine, and hyaluronic acid. For this study they developed an original technique in which a mast cell increase was obtained in the liver of rats, an organ in which normally there are few if any such cells. This aim was achieved by subjecting lots of white rats to the inhalation of carbon tetrachloride during four months, five days in succession in each week. The liver of these rats (and in a second group of animals also the connective tissue) was examined at the end of each of the four months of poisoning. Immediately after the sacrifice of the animal the liver was taken out and studied by means of: (1) histochemical examinations; (2) extraction of heparin; (3) extraction of histamine; (4) bioassay of heparin (anticoagulant effect); and (5) bioassay of histamine.

The techniques adopted in the several phases of the investigation were also used for the study of the liver and lungs of oxen and dogs. The authors concluded that the hypertrophic hepatitis of rats due to carbon tetrachloride poisoning produced a marked increase in the amount of heparin and histamine derived from the presence of a large quantity of mast cells. This investigation confirms the suspected relation between mast cells and the production of heparin and histamine. On the other hand the production of hyaluronic acid by mast cells was not corroborated by this investigation.

Amebic Lesions of the Liver.—If amebic hepatic necrosis represents a clearly recognized clinical picture, the same is not true of acute and chronic amebic hepatitis. Da Silva and Torres (*O Hospital* 51:663, 1957) reported an analysis of 725 autopsy protocols and found only one case of confirmed amebic abscess of the liver. Searching for other amebic lesions of the liver, they studied the records of 82 patients suffering from amebiasis, but no reference was found of any clinical picture, past or present, that suggested the possibility of some form of amebic hepatitis. To have a uniform criterion for the diagnosis of amebiasis, the authors decided to include in their study only the cases (40) whose diagnosis was established by the presence of cysts of Entamoeba histolytica in the stools. For all these 40 cases the records included the results of several liver function tests, a complete blood count, a sedimentation rate, a roentgenogram of the chest, a complement-fixation test for amebiasis, and a needle biopsy of the liver.

In 7 of these 40 cases the disease had begun two years before the patient's hospital admission, and on admission the patient was having an acute exacerbation. In the rest of the patients the disease was chronic, having begun at least five years earlier. The ages of the patients varied from 21 to 54 years. In only 18 of these patients was some other hepatic disease, such as schistosomiasis, viral hepatitis, protein deficiency, syphilis, or malaria, not found. No specific changes directly related to amebiasis could be demonstrated. The mild lesions observed corresponding to the designation of acute amebic hepatitis were related either to the absorption of bacterial products through the damaged intestine or to some nutritional deficiency coexistent with parasitic infection or caused by it. A histological picture of a true amebic hepatitis could not be found, even in cases associated with some degree of hepatic enlargement and tenderness.

The items in these letters are contributed by regular correspondents in the various foreign countries.

INDIA

Threatened Abortion.—N. Kishore and co-workers (*J. Obst. & Gynec. India* 7:4 [June] 1957) stated that there should be little or no cornification of cells in the vaginal smears of pregnant women who are progressing normally and that most of these cells should be basophilic. The vaginal smear can be used to detect changes in the cytology in patients with threatened abortion, to determine the minimum degree of cornification that would cause inevitable abortion, to learn whether the degree of cornification can in any way be correlated with the clinical findings and the obstetric history of such patients, to predict the ultimate outcome on the basis of these changes, to assess the accuracy of such predictions, and to suggest a line of treatment to be adopted on the basis of these changes. One hundred patients with threatened abortion were thus studied. The results were correlated with the obstetric history. It was found that the prognosis was best in the group who had smears resembling those of normal pregnancy. The prognosis in the group with up to 30% cornified cells was fair. Those with 31 to 60% cornified cells had a poor prognosis, and it was worst in those with over 60% cornified cells. The obstetric history was of prognostic importance in those in whom the smears resembled those of normal pregnancy or had up to 30% cornified cells. The prognosis was good if these patients had a good obstetric history or were primigravida. The history had no bearing in those with smears showing more than 30% cornified cells. In these patients cytological interpretations were more accurate. The presence of 30% cornified cells should be considered as the borderline below which a good prognosis may be given. Patients with 31 to 60% cornification may be benefited by hormonal therapy. This method can be used to institute early and accurate hormonal therapy and to follow the progress of the case. Predictions were correct in 87.8% of cases.

Renal Biopsies.—L. R. Sarin and co-workers (*J. Indian M. A.* 29:1 [July 1] 1957) stated that needle biopsy has been found useful in the diagnosis of diseases of the kidney, especially when routine laboratory investigations fail to show involvement of the kidney in such conditions as diabetic nephropathy, systemic lupus erythematosus, and periarteritis nodosa. The authors determined the prothrombin time, bleeding time, and clotting time before performing the biopsy. Biopsies were done only on the right kidney and with the patient in two positions, prone and sitting. Of 35 biopsies on 34 patients, tissue suitable for histopathological examination was obtained in 20. The tissue from a normal kidney is pink with red granules. In patients with the nephrotic syndrome, the tissue is nearly white and translucent with no red granules. None of the patients had any serious reactions after the biopsy. All had local backache and transient microscopic hematuria. Of 12 conditions diagnosed clinically as nephrotic syndrome, 5 were found to be amyloidosis. The rest were found to be various stages of glomerulonephritis. In two young patients suffering from diabetes, diffuse intercapillary glomerulosclerosis was diagnosed. Although renal biopsy is a valuable adjunct in the diagnosis of renal disease, its scope is limited, as a satisfactory piece of kidney tissue is not obtained in every case.

Cardiac Disease and Pregnancy.—K. M. Masani (*J. Obst. & Gynec. India* 7:4 [June] 1957) reviewed 47 cases of cardiac disease associated with pregnancy collected from a series of 22,833 full-term confinements. This gives an incidence of cardiac disease of 0.2%. In 41 patients the heart disease was of rheumatic origin, and in 6 it was congenital. In the entire series mitral stenosis was the commonest organic lesion, being present in 29 patients; 3 had mitral insufficiency; 8 had mitral stenosis with insufficiency; and 2 had mitral stenosis with aortic insufficiency. Mitral valve lesions alone or in combination with other lesions accounted for all but one case of acquired valvular disease. Of the patients with congenital heart disease, one had an interventricular septal defect, one had an interauricular septal defect, two had both, and in one the type of lesion could not be defined. Although the findings in this series showed that the incidence of severe decompensation increases with age and parity, young primiparas with severe decompensation were seen.

Ten patients with cardiac disease were below the age of 20 years, 5 being primiparas and 5 secundiparas. One of these primiparas was seen for the first time during labor and died, without being delivered, from pulmonary edema. The cardiac lesion of only one primipara was of class I (according to the classification of the American Heart Association, 1945). In the entire series, 18 were of class I, 22 of class II, 3 of class III, and 4 of class IV. Patients of class I had no symptoms and were given a diagnosis by routine examination. In the patients of class II dyspnea on exertion was the chief symptom. Those of classes III and IV had dyspnea, orthopnea, cough, and edema. The management during pregnancy was by rest, salt restriction, ammonium chloride mixture if edema was present, and mercurial diuretics or acetazolamide if the urinary output was diminished. Anemia was commonly associated and was treated by iron, liver, vitamin B_{12}, and folic acid. All but two patients who required forceps delivered spontaneously. There were three deaths. One died, without being delivered, of pulmonary edema; one from cardiac failure eight hours after delivery; and one five days after delivery.

Health Program on "War Footing."—Two hundred delegates attending the Rajkot and Ahmedabad division public health and rural sanitation seminar recommended to the government of Bombay that the health program in the state be put on a "war footing." The seminar recommended the delegation of powers to medical officers to buy drugs, medicaments, and insecticides in times of emergencies. It also suggested that there should be day-to-day coordination of work between the health and developmental departments in rural areas so that the medical department could continue its work even after its period of the developmental program ended in a particular area. The seminar recommended that a health committee for every village in a development block be set up and made responsible for submission of a report to the primary health center on the occurrence of any communicable disease in the village. It also suggested that the department of health give adequate training to workers at the village level in first aid. The seminar also agreed on the suggestion to organize cleanliness drives in villages for a week every year and to hold intervillage competitions in rural sanitation.

Aviation Medicine.—The government has set up a school of aviation medicine at Bangalore. The school will concurrently run separate courses for Air Force medical officers, pilots, navigators, other personnel of the general duties branch, and airmen of the medical branch. Indian Air Force medical officers had hitherto to be sent abroad for this type of training.

NEW ZEALAND

Controlled Hypotension in Neurosurgery.—About 20% of the patients in whom controlled hypotension was induced with hexamethonium bromide and augmented first by posture and later by applying negative pressure to the legs failed to respond. It appeared that in these patients, after the maximum effect of hexamethonium bromide had been obtained, at least some of the blood vessels were contracted. One possible explanation was that this might be due to circulating epinephrine or arterenol acting peripherally on the vessel walls. With this hypothesis in mind, R. L. Coulter (*Anaesthesia* 12:74, 1957) reported the results of using adrenergic blocking agents. After preliminary trials with chlorpromazine, Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chloroethylamine hydrochloride) was chosen. Dibenzyline is several times more powerful than its predecessor Dibenamine, and much less toxic. Dibenzyline dissolved in propylene glycol and alcohol and acidified with hydrochloric acid was given to 26 neurosurgical patients resistant to hexamethonium; there was a resultant drop in blood pressure in 25 of them. The smallest effective total amount was 25 mg., but most of the patients had 50 to 100 mg. In only four of these patients was the pulse rate, after hexamethonium therapy, under 100 per minute. In many it was 140 to 160. Dibenzyline had no apparent effect on the pulse rate. Coulter concluded that the failure of large doses of hexamethonium to produce a useful degree of postural hypotension in a small proportion of patients is probably due to the presence of circulating epinephrine and perhaps arterenol, causing a direct vasoconstriction and usually a tachycardia. The vasoconstriction but not the tachycardia can usually be abolished by the use of Dibenzyline.

Adrenalectomy Follow-ups.—The population of New Zealand is widely scattered in small towns far from the main city hospitals. According to Woodruff and co-workers (*Australian & New Zealand J. Surg.* 26:297, 1957) total adrenalectomy for the palliative treatment of disseminated cancer of the breast would not be feasible for patients living in rural areas owing to difficulties in assessing maintenance. One of their patients, however, is taking a daily minimum maintenance dose of 0.3 mg. of fludrocortisone and 40 mg. of cortisone. Her clinical state is maintained from biweekly estimations of urinary sodium and potassium and of blood sugar levels. The patient has been instructed to collect and measure her urinary output on the relevant days and to mail a small sample labeled with the total volume to the Otago Medical School at Dunedin. Blood specimens are obtained by a country doctor and also sent to Dunedin. The results are referred to the country doctor. The procedure has been most satisfactory for both the patient and her medical advisors.

High-speed Dental Drill.—Selling dentistry to the New Zealand public, with quickly-decaying teeth, promises inestimable benefits. The dental profession here has welcomed the new high-speed drill, which is painless. The secret of its success is the speed with which it revolves—about 250,000 rpm compared with present speeds of 8,000 to 10,000 rpm. Dental researchers had known for years that higher speeds would cut vibrations, the cause of much pain. A turbine driven by compressed air has been found to give the desired speed, and a hand piece has been designed which is no larger than the present ones. Heat, another cause of the patient's discomfort, has been eliminated by using a fine spray of cold water.

Dental Prophylaxis.—Professor F. Wilkinson, Dean of the University of London Postgraduate Dental School and chairman of the Education Committee of the General Dental Council of Great Britain, recently paid a visit to the University of Otago Dental School. The purpose of Professor Wilkinson's visit was to look into the training of dental nurses in New Zealand. A similar training scheme is now to be established in Great Britain. Dental attention must be carried out continuously to be effective, Professor Wilkinson said, and he advocated the continuation of state responsibility up to the age of 21, when a person could be expected to seek treatment himself. He suggested that dental nursing should attract more young women, who are well suited for dealing with children, as it is a job which can be continued part time after marriage.

Amendment of Law on Insanity.—Power for a magistrate to order the confinement of a person who is not sane enough to plead when charged with a summary or indictable offense is given in the Mental Health Amendment Bill that was introduced to the House of Representatives recently. At present there is no provision for the case where a person is found by the magistrate's court at the preliminary hearing to be unfit to plead, or for the case of a summary charge. Such confinement—the pleasure of the Minister of Justice—can be ordered only if a person is found by a jury to be insane so that he cannot plead. The bill also allows boards incorporated under the religious, charitable, and educational trusts to operate "short-stay" homes for mentally retarded children. At present, these homes can be operated only by incorporated societies. The period during which a child under the age of 18 years can stay in these homes is extended from a maximum of two months at any time to a period approved by the director of the mental hygiene division of the Health Department. A proviso is that satisfactory facilities for training must not be available in the locality where the child usually lives but are available either in or near the home.

UNITED KINGDOM

Mental Illness in Scotland.—The annual report of the Scottish Board of Control reveals that in 1956 the number of admissions to mental hospitals was 10,147, compared with 9,168 in the previous year. Some patients were admitted more than once, and, taking this into consideration, the number of patients actually admitted was 9,200. The number of voluntary admissions rose to a record figure of 73% of the total admissions. The shortage of accommodations for mental defectives is still acute, in spite of the increased expenditure on mental health by the National Health Service. The number of mental patients cared for in private dwellings has increased to 341. In 1956 there were 8 suicides and 55 accidental deaths in mental hospitals. The use of tranquilizers has temporarily improved many psychotic patients, some of whom were returned home for short periods, but many of them broke down again and returned to the hospital. More patients are being treated by the "open" method, without locked doors. Week-end leave is often permitted, and even suitable outside employment is allowed. Occupational therapy is being used more, and greater use has been made of group psychotherapy and discussions, recreation (games, music, and television), and instruction in useful crafts and domestic activities.

Drug Addiction.—Great Britain remains comparatively free of addiction to drugs (chiefly narcotics) controlled by the Dangerous Drugs Acts. The number of known addicts in 1956 in the United Kingdom was 333, according to the British government's report to the United Nations. Among the addicts were 77 doctors, 2 dentists, and 20 nurses, or 30% of the total. Those addicted to morphine numbered 176, to meperidine hydrochloride 64, to heroin 53, to methadone 20, to phenadoxone 8, to cocaine 6, and to levorphanol tartrate 4. Apart from members of the medical and allied professions, who have access to narcotics, no occupational group appears to be unusually associated with addiction, although a small but appreciable number of dance-band musicians are known addicts. In 1956, 42 cases of addiction were reported; 3 of these were in recidivists. Opium smoking is rare and is practiced mostly by Asiatics in seaports. Most of the traffic in marihuana occurs in London. There were 103 convictions for dealing in or possessing the drug, 60% of them in London, the offenders being mostly of West African or West Indian origin. Since addiction is not a serious problem here, there are no state institutions for investigating the problem or for treatment, which is carried out in public hospitals and private nursing homes. In the home office an official record is kept of all known drug addicts. In 1956, 54.2 kg. of opium and 114.1 kg. of marihuana were seized. There were 157 prosecutions and 151 convictions for violation of the narcotic laws. Nearly all those convicted for offenses involving manufactured drugs were of European origin. Most addicts obtain drugs by forged prescriptions or by getting supplies from more than one physician.

Health Service Reform Plan.—A plan for a reformed Health Service on the basis of personal insurance aided by state subsidy, which could mean a net saving to the exchequer of 392 million dollars a year, is being sponsored by the Fellowship for Freedom in Medicine. It contains features adapted from the Australian system. The main objectives are to check the deterioration of the traditional high standards of medicine and to curb the ever-mounting cost to the taxpayer. The fellowship, which consists mainly of physicians, was founded by the late Lord Horder. A schedule of standard benefits would be agreed on between the Ministry of Health, the insurance companies, and the medical profession. The insurer would pay 60% of the benefit and the exchequer 40%. The patient would pay the fees not covered by the terms of insurance. On the principle of the motorist's "no claim" bonus, it is suggested that, as an inducement to patients not to make unnecessary demands, an insurance company might offer certain extra benefits to patients whose claims in a year did not exceed a certain sum.

The *British Medical Journal*, Aug. 3, notes that, according to the Fellowship for Freedom in Medicine, the major faults of the National Health Service are (1) the virtual abandonment of the insurance principle, (2) the policy of focusing the Service on the hospital rather than on the family physician, and (3) the widespread delusion among the public that their insurance payments cover the costs of the Service. The fellowship believes that the Health Service in its present form has a harmful effect on the practice of medicine and advocates a state-subsidized compulsory insurance of physicians' and hospital fees by those in a position to pay for it and a free Health Service for all others. The effect of the proposals is to give the insured person and his dependents about 90% coverage against the costs of general practitioner and hospital treatment. The motive behind the scheme is the laudable one of running a Service that places at least some direct responsibility on the patient for his health. This aim is in line with the following recommendation made by the World Medical Association in 1952: "Any Social Security Scheme should contain elements that encourage self reliance and a sense of personal responsibility; and . . . any Social Security Scheme should stress the obligation of the individual to make at least part of his contribution directly to the functioning and costs of the Scheme."

Rheumatoid Arthritis.—The joint committee of the Medical Research Council and the Nuffield Foundation have reported the results of clinical trials designed to compare the effectiveness of cortisone with that of prednisone in the treatment of rheumatoid arthritis. Sixty-eight patients who had been treated with cortisone for a year or more were divided into two groups, matched as far as possible for age, sex, duration of disease, and duration of cortisone therapy. One of each pair selected at random continued to receive cortisone. The other was changed to prednisone therapy, the dosage of which was commenced at one-third of the amount of cortisone the patient had been taking and subsequently adjusted so that the patient received the maximum benefit without side-effects. Both groups were followed up for a year. Clinical assessment was based on a judgment of the activity of the disease and an evaluation of the patient's general functional capacity. The strength of grip in each hand was measured, and laboratory tests were made with respect to the sedimentation rate and hemoglobin level.

Throughout the trial the patients remaining on cortisone therapy showed, on the average, no material change for better or worse, compared with their state in the previous year, but those getting prednisone showed improvement in strength of grip, sedimentation rate, hemoglobin level, and general functional capacity and decreased disease activity. After a year the disease was judged to be inactive in five of this group but in none of the patients getting cortisone. The patients on prednisone therapy received the greatest benefit in the first three months. Then, for the group as a whole, the benefit generally diminished thereafter, though it still remained, to a lesser degree, at the end of one year This partial loss of initial improvement may have been due to the general reduction that occurred in the dosage of prednisone during the course of the year. Although the dosage was adjusted to obtain the maximum benefit and minimum of side-effects the latter did occur, particularly "moon face," which was more prevalent in the prednisone-treated than in the cortisone-treated group. The more favorable results noted with prednisone might have been due, in part at least, to the use of a dosage that was relatively high in comparison with the cortisone dosage.

Salk Vaccine Gets into Britain.—Evidence is accumulating that large quantities of Salk poliomyelitis vaccine are arriving in Great Britain from the United States, although no import licenses have been issued by the Ministry of Health. Fears have been expressed by physicians that this "smuggling" is likely to become a matter of personal gain to unscrupulous people. At the moment this vaccine is being sought mostly by parents seeking protection for their children. British production to date has been sufficient to vaccinate only one million of the six million children aged between two and nine. Many physicians believe that the government should import enough vaccine to vaccinate children of all ages and any adults who so desire. The Ministry's restriction of the importation of the vaccine is based on the Therapeutic Substances Act, which requires licensing by the Ministry. Although no such licenses have been granted, the Ministry intimated that in certain circumstances the importation of small amounts would be authorized. These must be unsolicited gifts addressed to individuals. There must also be evidence that the vaccine is to be administered by a physician who accepts full responsibility. Most of the vaccine entering the country is arriving because of a liberal interpretation by both physicians and patients of the expression "unsolicited gifts." Some is being brought by returning travelers.

The *Daily Telegraph* stated that all physicians must know that Salk vaccine is being brought into Great Britain, but it is doubtful that anybody, including the Minister of Health and the Postmaster-General, knows how much. Since the disasters resulting from faulty manufacture of the vaccine earlier are not likely to be repeated, no physician using vaccine procured from the United States need have any anxieties about the results.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Paternity Tests: Admissibility in Proceeding for Nonsupport.—The defendant was indicted for a failure to provide for the support of his wife and two minor children. His motion for a blood test under the provisions of a 1954 law was reported without decision to the Supreme Judicial Court of Massachusetts.

The Commonwealth objected to the ordering of the blood test on the ground that the law was not applicable to proceedings for nonsupport. The superior court submitted two specific questions to the Supreme Judicial Court: (1) whether the provisions of chapter 278, section 12A, are applicable to proceedings brought for nonsupport of minor children; (2) whether expert testimony of blood tests, which show an exclusion, is admissible on the question of paternity in criminal proceedings brought for nonsupport of minor children born during wedlock. Chapter 278, section 12A, provides: "In any proceeding to determine the question of paternity, the court, on motion of the defendant, shall order the mother, her child and the defendant to submit to one or more blood grouping tests, to be made by a duly qualified physician or other duly qualified person, designated by the court, to determine whether or not the defendant can be excluded as being the father of the child. The results of such tests shall be admissible in evidence only in cases where definite exclusion of the defendant as such father has been established. If one of the parties refuses to comply with the order of the court relative to such tests, such fact shall be admissible in evidence in such proceeding unless the court, for good cause, otherwise orders."

In answer to the first question, the court held that, since the indictment for nonsupport is not a "proceeding to determine the question of paternity" the statute does not authorize an order that the mother and children therein named submit to a blood grouping test.

In answer to the second question, however, the Supreme Judicial Court held that expert testimony of blood grouping tests showing the definite exclusion of the defendant as the father of a child, the support of whom is the object of an indictment, is admissible if otherwise competent. Continuing, the court said that there is substantial authority to support the scientific reliability of blood grouping tests to prove biologically the impossibility of paternity. The court admitted that there is a presumption of legitimacy in the case of a child born in wedlock which can be overcome only by facts which prove beyond reasonable doubt that the husband could not have been the father. Proof of the impotency of the husband or no access to his wife, for example, are held to be sufficient. Since like certainty of proof appears obtainable through the definite exclusion of the husband's paternity by the tests here under consideration, the court concluded, it follows that evidence derived from blood grouping tests would warrant a finding beyond a reasonable doubt that the defendant is not the father of either child named in the indictment and would be admissible.

The case was therefore remanded to the trial court for further proceedings in accordance with such opinion.—*Commonwealth v. Stappen, 143 N.E. (2) 221 (Mass., 1957).*

Validity of Wife's Consent to Electroshock Treatment for Husband.—This was an action for damages against the insurer of a physician for injuries allegedly caused by the physician's malpractice. From a judgment for defendant, the plaintiff appealed to the United States court of appeals for the Fifth Circuit.

The insured physician, a psychiatrist, determined that the plaintiff needed some electroshock treatments. After having been informed of the possible hazards of such treatments, the plaintiff's wife consented to their administration to the plaintiff. The plaintiff, however, contends that administering the treatments without his consent deprived him of his freedom of contract and, therefore, of his liberty without due process of law. The evidence showed that the plaintiff needed neuropsychiatric treatment. It also showed, however, that his condition was such, in the judgment of his physician and his wife, as to make it unwise and unsafe to require him to undergo the strain of discussing and considering the possible hazards involved in electroshock treatments and of making a decision as to whether or not such treatments should be administered. The plaintiff's wife fully comprehended the situation and gave her consent to the treatments.

The case, said the court, must be governed by the principle that, before proceeding, a physician must acquaint a patient with the diagnosis and proposed treatment and obtain his consent, except that, when the circumstances require it, someone properly acting for the patient may give the consent. In such instance, the consent of the wife who fully understands the need and the hazards is a valid, legal consent. It was, therefore, not error, concluded the court of appeals, for the trial court to charge that there was a valid consent. Accordingly, the judgment for the defendant was affirmed. *Lester v. Aetna Casualty & Surety Company, 240 F. (2d) 676 (C. A. 5, 1957).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Atrial Fibrillation Following Mitral Valvulotomy: A Study of Its Clinical Characteristics and Predisposing Factors. R. Heinz and H. Hultgren. A. M. A. Arch. Int. Med. 99:896-903 (June) 1957 [Chicago].

The most common postoperative complication in mitral valve surgery in patients with a normal sinus rhythm is the occurrence of atrial fibrillation. Sixty-seven of the 144 patients studied had atrial fibrillation at the time of surgery. Of the 77 patients who had a normal sinus rhythm prior to surgery, 36 (47%) developed atrial fibrillation postoperatively. Atrial fibrillation appeared within the first 7 postoperative days in 92% of the 36 patients. Fibrillation appeared most frequently on the second postoperative day, only 2 patients beginning to fibrillate on the day of surgery. In the patients who developed atrial fibrillation postoperatively, no significant relationship between the ventricular rate or the day of onset of fibrillation and the age of the patient was noted. The onset of atrial fibrillation resulted in an increase of the ventricular rate of 31 digitalized patients to a mean rate of 142, while 6 nondigitalized patients experienced a mean ventricular rate of 168. The patients with persistent sinus rhythm differ from the other 2 groups in being younger, but the difference between the postoperative fibrillation and chronic fibrillation groups is not sufficient to be of any statistical significance. Of those patients exhibiting postoperative atrial fibrillation, 28% gave a history of previous paroxysmal fibrillation, in contradistinction to those patients (5%) who maintained a normal sinus rhythm. A relationship of mild or moderate mitral insufficiency to persistent atrial fibrillation does exist, although no correlation is readily apparent between the size of the left atrium and the incidence of either persistent or postoperative fibrillation. Histological evidence of rheumatic carditis supports the tenet that positive auricular biopsies are more common in younger patients in whom the incidence of fixed or postoperative fibrillation is lower. Slowing of the ventricular rate after onset of atrial fibrillation was accomplished largely by the administration of additional digitalis glycosides. None of the patients having atrial fibrillation preoperatively reverted spontaneously to sinus rhythm postoperatively, while 10 patients who fibrillated postoperatively did have spontaneous return to sinus rhythm. Sinus rhythm restoration was successful in 16 patients (70%) who received an average of 2.5 Gm. of quinidine, which was not given until the 7th or 8th postoperative day in order to allow ample time for spontaneous conversion. Only 10 of the 36 patients who began to fibrillate postoperatively were not returned to sinus rhythm. Quinidine, given postoperatively to 18 patients who had atrial fibrillation preoperatively, resulted in sinus rhythm restoration in 7 (39%). The factors predisposing to fibrillation are the presence of associated mitral insufficiency, paroxysmal atrial fibrillation, and increasing age. There is no evidence to substantiate a decrease in intracellular potassium as the cause of atrial fibrillation.

Anemias of Hypophysial and Diencephalic Origin. J. Leprat. *Presse méd.* 65:892-895 (May 11) 1957 (In French) [Paris].

The hematological repercussions of diencephalic and hypophysial disorders have been the subject of intensive study in recent years. No convincing evidence has been found to show that anemia may result directly from any diencephalic condition, without the intervention of the pituitary body. Pituitary insufficiency, however, is responsible for the most frequent and severe anemias of all those that are attributable to an endocrine origin. The most significant factor in the production of the hypopituitary anemias seems to be the anterior lobe of the pituitary body. Thus it has been shown that the anemia produced by hypophysectomy in experimental animals does not appear when only the posterior and intermediate lobes are removed.

Anemia is almost constant in Sheehan's postpartum syndrome, and it is also common in patients with certain hypophysial tumors (chromophobe adenoma and craniopharyngioma) and in those with various other types of panhypopituitarism. Hematological studies show that the anemia accompanying all of these conditions is usually microcytic and either hypochromic or normochromic during the greater part of its course. The decline in the red blood cells is ap-

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The place of publication of the periodicals appears in brackets preceding each abstract.

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parently due to hypoplasia of the marrow, found in most patients in association with fatty infiltration of the marrow. Gastric achylia is also a common finding in these patients. Hormone therapy is the only method by which the normal blood picture can be restored. A combination of thyroid extract with testosterone and cortisone given in small doses is effective in some cases, but in others recourse must be had to corticotropin, which seems to be the most active of the hypophysial hormones in this connection.

Experimental findings in hypophysectomized animals strongly suggest the existence of a specifically hematopoietic hypophysial principle, but whether this new hormone, if it exists, acts directly at the level of the medullary parenchyma or indirectly by means of more general metabolic changes is still a matter of speculation. Complex as this and the other problems connected with hypopituitary anemias are, their theoretical importance to hematologists and endocrinologists is so great that they should be given further study.

Asthmatic Wheezing: Compression of the Trachea and Major Bronchi as a Cause. E. Dekker and J. Groen. Lancet 1:1064-1068 (May 25) 1957 [London].

It is commonly assumed that the typical wheezing during the expiratory phase of the asthmatic attack is produced by a stenosis of the smaller bronchi and bronchioli. Opinions differ regarding the cause of this stenosis. Some attribute it to a spasm of the bronchial and bronchiolar musculature; others, to a partial obstruction by mucus, or edema and congestion of the bronchial mucosa, or both. The authors present evidence that it may be produced, at least partly, by a narrowing of the trachea and larger bronchi. They were able to confirm old observations that asthmatic patients and normal people can learn to wheeze at will by imitating the typical asthmatic expiration. This voluntarily produced wheezing is indistinguishable from the spontaneous wheezing during asthmatic attacks. X-ray studies during this voluntary wheezing reveal, both in normal subjects and in asthmatic patients, a considerable narrowing of the cervical and thoracic trachea and of the main bronchi. The same narrowing was found in x-ray pictures taken during expiration in patients with spontaneous asthmatic attacks.

In human lungs, obtained at autopsy, which were made to breathe under different pressure in a closed jar, an expiratory pressure of 1 cm. Hg or more produced a considerable stenosis by a prolapse of the membranaceous part of the trachea and main bronchi into the lumen. It is postulated that a similar passive compression of the larger air passages, caused by the high intrathoracic expiratory pressure which asthmatic patients produce as a result of their peculiar type of breathing, is an important factor in the production of the asthmatic bronchostenosis and of the expiratory wheezing which is so characteristic of this disease. These observations help indicate the mechanisms by which asthmatic attacks are brought about and by which they can disappear with breathing exercises.

A 36-Year Study of Diseases of the Chest on a University Campus (Concluded). J. A. Myers, R. E. Boynton and H. S. Diehl. Journal-Lancet 77:171-181 (May) 1957 [Minneapolis].

In a previous paper, an abstract of which appeared in THE JOURNAL (164:1154 [July 6] 1957), the authors reported on their experience with diseases of the chest studied at the clinic for the diagnosis and treatment of tuberculosis and other diseases of the chest at the University of Minnesota student health service between 1920 and 1956. They had emphasized the magnitude of the problem of clinical tuberculosis on the campus which led to adoption of successful methods for its control. The incidence of contagious tuberculosis increases as people grow older. Thus a tuberculosis control program among faculty and personnel members is exceedingly important. Tuberculous pleurisy with effusion was seen in 119 persons. Extrathoracic tuberculosis involving bones, joints, kidneys, lymph nodes, and meninges has been observed in 61 persons.

There may be students or faculty members on a campus with clinical and even contagious tuberculosis who feel and appear well and are not discovered unless a detailed search is made for them. The best search consists of testing all with tuberculin and subjecting reactors to a complete examination, including roentgenograms of the chest. Every student who reacts characteristically to the tuberculin test, either on entrance or while in school, should be apprised of the fact that multiple lesions exist in his body and that they contain living tubercle bacilli. He should be informed that these organisms may produce gross and clinical disease at any time during the remainder of his life. However, such disease can usually be detected before it has caused much destruction or spread to others and at a time when it can be treated successfully. Student health services can do much to help solve the serious problem of tuberculosis in national defense.

Primary Carcinoma of Liver: A Clinical Analysis of 107 Cases. Chung Hsüeh-Li and Ch'en Hao-Chu. Chinese M. J. 75:295-315 (April) 1957 (In English) [Peking].

Primary carcinoma of the liver is rare among Europeans and Americans but common among Africans and Orientals. In the 14 years from 1941 to 1954 the authors observed 217 patients with primary carcinoma of the liver among 61,487 admitted to 2 Shanghai hospitals. This report is concerned with 107 of these patients in whom the diagnosis was verified by histopathological examination of biopsy specimens of the liver. The ages of the patients ranged from 10 months to 66 years, but nearly 90% were between 31 and 60 years of age; there were 100 male and 7 female patients. The onset is insidious, symptoms being absent or very slight during the early stage. A growing mass in the abdomen, with pain, impairment of appetite, loss of weight, and fever are the usual symptoms during the late stage, when most of the patients reviewed here were first seen. Many appeared chronically ill and emaciated and a few were acutely ill, but in the others the general condition was fairly good. Enlargement of the liver was noted in all but 2 of the patients, in whom ascites made palpation difficult. The border of the enlarged liver usually extended 5 to 10 cm. below the right costal margin, causing bulging of the right upper quadrant of the abdomen. The liver was usually firm and tender, with an irregular surface. The spleen was palpable in 33 of the patients. Forty patients had jaundice. The laboratory findings and the main clinical features are discussed.

Although a tentative diagnosis of carcinoma of the liver may be made from an analysis of the history and physical findings, definite diagnosis depends upon the demonstration of cancer cells or neoplastic tissue. The authors investigated the merits of different diagnostic methods, and show that, apart from laparotomy, liver puncture and biopsy or smear examination for cancer cells with Wright's stain is the most reliable method, despite the risk of internal hemorrhage. The liver specimen obtained by puncture and biopsy may be examined either in sections or by the simple smear method. Search for cancer cells in the peritoneal and pleural fluids was not of great diagnostic value, and liver-function tests usually did not give much help in diagnosis. Resection was done in 1 of the patients, but urrence soon followed and the patient died 6 onths after operation. Two patients were treated with nitrogen mustard, but no definite therapeutic effect was observed. So far there is no satisfactory method of treatment. The authors believe that improvement in economic conditions, better nutrition, and proper treatment of gastrointestinal and hepatic disorders would aid the prophylaxis of carcinoma of the liver.

Leukaemia. R. B. Scott. Lancet 1:1053-1057 (May 25) 1957 [London].

The incidence of leukemia is increasing, and, while more precise diagnosis may explain some of this increase, the author believes that it does not explain all of it. The nature of the leukemic process is now generally held to be neoplastic; and, when "cancer" is defined in terms of dynamic cell behavior, there can be little quarrel with this view. It is undeniably a purposeless progressive uncoordinated cellular proliferation. The fundamental cause of leukemia is to be sought in the larger mystery of the cause of cancer. In commenting on external factors in the pathogenesis of leukemia the author mentions the higher incidence among survivors in atomic bomb explosions, in those who have received irradiation for ankylosing spondylitis or for thymic tumors, and among radiologists. A genetic factor seems to be indicated by the occasional report of several cases in one family. Leukemia has also been observed in almost every species of animal.

Acute leukemia is distinguished from the chronic form by the immaturity of the proliferating cells and the rapidity of its course. Myeloblastic, lymphoblastic, and monocytic varieties are recognized, but the distinction between the several primitive elements may be difficult, and refuge is often sought in the evasive qualification of "stem cell." There is, therefore, considerable variation in the reported incidence of the different types. More males than females fall victim to acute leukemia, an inequality due to the frequency of the lymphoblastic type in male children. The age-incidence of the 3 varieties shows striking differences. Myeloblastic leukemia is spread evenly throughout the whole span of life; lymphoblastic is predominantly a disease of children; and monocytic affects mainly the middle-aged. The different cytological varieties seldom present clear-cut clinical differences. The diagnosis of acute leukemia is established by examining the blood and bone marrow. When the changes in the peripheral blood are inconclusive, the diagnosis is established by bone-marrow puncture, which will reveal in almost every instance a replacement of the normal cells by myeloblasts, lymphoblasts, or primitive monocytes. The course of leukemia is so variable that figures of average duration have little meaning.

The fundamental aim of treatment is to control the neoplastic process and restore normal cellular behavior in the hemopoietic system, but symptomatic treatment must be considered. While blood transfusion has no place as a definitive means of treatment, it should be prescribed in quantities sufficient to maintain a hemoglobin level of 9 Gm. per 100 ml. while attempts are made to control the leukemic process. The "specific" agents which may exert partial or complete, although never more than temporary, control over the leukemic process are the steroid drugs and certain antimetabolites. In the present series, in 81 patients treated with blood transfusion and antibiotics alone the mean length of survival from the first symptom was 20.2 weeks, and in 63 who received in addition "specific" treatment, 21.7 weeks. These figures provide no cause for optimism, but the author has at present 6 patients in complete remission. It may be claimed that there are, at least, grounds for hope and encouragement in this recently acquired ability occasionally to halt for a while the formerly unrelenting malignant process known as acute leukemia.

Clinical Evaluation of 3 Anticoagulants in Thromboembolic Disease. J. M. E. Neilson and A. W. Mollison. Brit. M. J. 1:1214-1217 (May 25) 1957 [London].

Of 361 patients with thromboembolic disorders, 57 were treated with cyclocumarol (Cumopyran), 125 with ethyl biscoumacetate (Tromexan ethyl acetate), 79 with phenindione. Patients given ethyl bis- ıcetate or phenindione received 10,000 to 15,000 of heparin intravenously every 6 hours for the 4 hours of anticoagulant therapy. Because of its r effect on the prothrombin time, those given umarol received the same dosage of heparin 6 hours for 48 hours. Cyclocumarol, ethyl bis- acetate, and phenindione were given by mouth ided doses at 2 p. m. and 10 p. m. Two doses of . or 50 mg. of cyclocumarol on the first day were to be adequate for most patients. On the second doses of 12.5 or 25 mg. were most often neces- The daily maintenance dose varied from less than o 50 mg. The usual initial dose of ethyl bis- acetate was 600 mg. followed 8 hours later by ditional dose of 600 mg. On the second day of y, 2 doses of 300 mg. were most frequently used. otal amount given in the first 48 hours varied 300 to 2,400 mg., and the daily maintenance dose l from less than 150 to 1,200 mg. The most com- dose schedule of phenindione was 200 mg. di- into 2 doses on the first day, with 2 50-mg. doses e second day. The total dose given in the first 48 varied from only 125 mg. to as much as 650 mg., ne daily maintenance dose varied from less than 375 mg.

e following points of comparison were used: 1. A eutic degree of prolongation of the prothrombin was effected more quickly with phenindione than cyclocumarol. For all practical purposes, phen- ne was as rapid in its action as ethyl biscoumace- 2. Patients receiving cyclocumarol and ethyl umacetate showed greater and more frequent ations in their prothrombin times during mainte- therapy than did those receiving phenindione. e percentage incidence of hemorrhage was great- the patients treated with cyclocumarol. 4. In groups of patients the response of the prothrom- ime to vitamin K was the same, but in some nts receiving the longer-acting drug, cyclocu- l, the prothrombin time subsequently lengthened necessitated repeated administration of the vita- These findings suggest that phenindione is a satisfactory and more easily controlled antico- nt than either ethyl biscoumacetate or cyclocu- l.

GERY

cal Indications in Cerebral Hemorrhage. J. Guil- e, R. Roge, G. Mazars and A. Pansini. Presse méd. 7-829 (May 1) 1957 (In French) [Paris].

o-thirds of patients with untreated acute cerebral rrhage die during the first week. For this reason, necessary to operate as early as possible, not only ecial cases of hematoma at a late stage. Statistics ore than 10 years provide no accurate estimate of ercentage of patients saved through surgery. In eginning the authors treated surgically only subacute hemorrhages of pseudotumorous form, with a high rate of success. Later, they operated on patients with regard to the stage of their illness only. This included a series of cases usually considered hopeless. The complications of treatment and of systematic hibernation render more difficult evaluation of these data. The study of the series of 150 acute and severe vascular accidents treated surgically by the authors shows that in 22 patients with ischemic lesions there were 14 cures and in 128 with cerebral hemorrhage there were 87 cures. Seventy-five per cent of the latter 128 patients developed varying sequelae, either minimal or with unexpected functional recovery. These data stress the importance of surgery in spontaneous cerebral hemorrhage, the treatment of which should be based on elimination of the hemorrhagic focus. This should be done as early as possible, before signs of severe involvement of the cerebral trunk appear. Time should not be wasted on nonsurgical treatment; postponement of the operation is no longer justifiable. Age and arterial hypertension are not contraindications; however, severe azotemic nephritis or diabetic acidosis worsen the prognosis. The indication for operation is based on clinical and electroencephalographic examination and on arteriography and ventriculography as well. The operation is not serious in itself and consists in removing the clots and cerebral pulp through a narrow incision. The elimination of chronic azotemia and diabetes, along with the decrease of postponement of surgery, raises the hope that in the future there will be an increased rate of success or at least a decrease in mortality.

Valvular Pulmonary Stenosis with Intact Ventricular Septum: Clinical and Physiologic Response to Open Valvuloplasty. S. G. Blount Jr., J. van Elk, O. J. Balchum and H. Swan. Circulation 15:814-826 (June) 1957 [New York].

Thirty-eight patients with congenital valvular pulmonary stenosis were operated on with the aid of hypothermia and circulatory occlusion. The approach to the valve was transarterial, permitting plastic repair of the stenotic pulmonary valve with unimpaired vision and a dry operative field. Clinical and physiological studies were carried out before and after the operation in 25 of the 38 patients, 14 female and 11 male, between the ages of 1½ and 33 years. Of the 25 patients, 15 had an intact atrial septum and 10 had an associated functional or anatomic atrial defect. The first 3 patients were followed up for 3 to 3½ years, while the other 22 were followed up for from a few months to 3 years. Two of the 38 patients operated on died postoperatively; one, a 7-month-old infant, died suddenly and unexpectedly 12 hours after the operation, and autopsy was not permitted; the other, a 10-year-old boy, died 5 hours after the operation of a bleeding diathesis. This operative mortality of 5% compares favorably with that in patients operated on by the blind transventricular approach.

The results obtained in the 25 patients were considered superior to those obtained in patients operated on by transventricular approach. Only a minimal amount of actual valve substance was removed in the first 3 patients, and no valve tissue was excised in the last 35 patients. Auscultatory evidence of insufficiency of the pulmonary valve was occasionally noted. In the first 3 patients who have been followed for a period of 3½ years there has been no clinical nor physiological evidence that this minimal degree of pulmonary insufficiency is significant. The systolic pressure gradient between the right ventricle and the pulmonary artery was completely abolished in 17 of the 25 patients. A residual pressure gradient of more than 20 mm. Hg was present in the remaining 8 patients. The possibility exists that some valve cups, being fibrosed, were sufficiently rigid to obstruct blood flow in these patients, although adequate incisions had been made. Another explanation would be that an infundibular stenosis was present lower in the ventricle, although no evidence of it was found on exploration of the subvalvular area with the finger or with an instrument at the time of operation. The postoperative pressure tracings in 2 patients supported an additional explanation, namely, that obstruction to blood flow by the structures of a hypertrophied outflow tract of the right ventricle, resulting from the valvular stenosis, may be the cause of a residual gradient in some patients.

Slight to moderate pulmonary hypertension was observed postoperatively in 6 patients, although the pulmonary artery pressures were normal preoperatively. A definite explanation for this postoperative phenomenon must await further investigation.

Considerations on 200 Commissurotomies for Mitral Stenosis. G. Ceccarelli and C. A. Carlon. Minerva cardioangiol. 5:55-60 (March) (In Italian) 1957 [Turin, Italy].

The authors report on the results obtained in 200 patients subjected to mitral commissurotomy. Seventy-nine patients were male and 121 female. The lesion does not occur more frequently in women than in men. The larger number of women is due to the fact that it is easier to convince women regarding the necessity for and the benefit of operation. Four patients were below 9 years of age, 31 were 10 to 19 years old, 74 were 20 to 29, 53 were 30 to 39, 38 were 40 to 49, and 10 were 50 to 59. Stenosis was caused by rheumatic fever in 72 patients, by local infection in 43, by articular rheumatism and local infection in 49, by chorea in 12, and by an unknown cause in the remaining 24. Sixty patients had a good heart action, presenting a normal rhythm and no myocardial lesions; 79 had a fair heart action, with arrhythmia and a mild myocarditis; 69 had fibrillation and myocarditis. Seventy-four patients had a pure stenosis with fibrotic valvular edges; 64 had stenosis combined with mild insufficiency and fibrotic valvular edges; 43 had stenosis combined with insufficiency and hard valvular edges, which in some patients were calcified; 19 patie
a prevalent insufficiency. The patients with e
heart, tachycardia, arrhythmia, or fibrillation
treated with procainamide, digitalis, and quinid
some time before they were subjected to the ope
A knife was used in 20% of the patients, wh
others were subjected to a commissurolysis wi
finger. The heart was reached through an incis
the 4th left intercostal space. Very good results
obtained in 87 patients. Sixty-five patients dev
postoperative insufficiency; 44 patients dev
stenosis and insufficiency; 4 patients died. One p
died at the beginning of the anesthesia and a
after the opening of the thoracic cavity. The oper
is contraindicated while the disease causing th
nosis is still active and when roentgenologic ex
tion demonstrates massive calcification.

**Treatment of Stone in the Common Bile Duct. J
ford. Brit. M. J. 1:1202-1205 (May 25) 1957 [Lo**

A vertical, supraduodenal choledochoduodeno
was performed on 12 men and 19 women betwe
ages of 46 and 87 years with obstruction of the
mon bile duct by stone or by biliary mud. Th
was dilated in all 21 patients, and in most of t
was thickened and rigid. Sixteen of the patien
had 1 or more previous operations on the bilia
tem, but 5 patients had not been operated o
viously. One patient died of a massive pul
embolus on the 4th day after the operation.
other patients recovered, although their avera
was 66 years. Three of them died 15, 4, and
respectively, after the operation, apparently of
tions unassociated with it. There were no parti
complications in the postoperative period. In no
the patients was there any apparent leakage a
anastomosis. The freedom from symptoms was
prising; none of the patients had jaundice or
Air was seen postoperatively in a large part o
biliary passages of several patients. A barium mea
seen to go into the ducts for a considerable dis
but it soon came out. In one of the patients the
tract was outlined by air in the postoperative
genogram taken after a barium meal in the
position. As soon as the patient was placed i
supine position, the barium refluxed up the bile
which appeared rather dilated. It might be advi
to let the patients who have had a choledoch
denostomy not to lie down after a meal until suffi
time has elapsed to allow the stomach to empty

A vertical, supraduodenal choledochoduodenos
is an operation which gives good results, with free
from symptoms afterwards. It is very valuable i
tients who have recurrent stones or biliary mud
thickened, dilated common bile duct when prev
operations have been done. Performance of c
dochoduodenostomy is also probably sound pra
any patient in whom the duct, in addition to b
dilated from obstruction by stones, is thickened

from chronic inflammation, even though no pre- ; operation has been done. This operation is not ;ed when the duct appears healthy. even though ntains stones.

macological Asystole in the Surgery of the nguinated Heart: Experimental Research in Hy- ermia. P. Goffrini, E. Zanella, E. Botti and A. cchia. Chir. e pat. sper. 5:209-233 (March) 1957 Italian) [Milan, Italy].

rug-induced asystole during operation on the ex- guinated heart was studied in 12 dogs weighing o 20 kg. each. Some dogs received an injection into bulb of the aorta of 1 cc. of 5% potassium chloride kilogram of body weight. The body temperature he dogs was reduced to 25 to 28 C. The injection sed arrest of the heart for a period of 6 to 12 utes. Fibrillation, which could not be checked by of the usual procedures, began as soon as the ulation in the heart was restored. A second group animals were given injections of 25 to 35 mg. per gram of body weight of potassium chloride. Con- ctions of the heart were not arrested, and fibrilla- n developed immediately. A third group of dogs eived the drug associated with physical maneuvers reanimation. All dogs died because of an eventual est of the heart after a period of irreversible ven- ular fibrillation.

A second study was made in 17 dogs operated on der general anesthesia with barbiturates. The body nperature of the animals was reduced to 22 to 29 C. e dogs were given an injection into the bulb of the ta of 10 mg. per kilogram of body weight of acetyl- orine. Asystole was maintained for a period of m 8 to 20 minutes. Cardiac systole could be restored thout any complications. Asystole was obtained thout marked depolarization. The authors think at acetylcholine prevents damage to the myocardium ich might result from biochemical and physical mage caused by ischemia.

ccessful Treatment by Nephrectomy of Hyperten- n Resulting from Aorticorenal Embolus. P. W. ne, J. B. McNally, J. W. Lord and others. New gland J. Med. 256:1076-1079 (June 6) 1957 [Boston].

In several well-documented cases of hypertension, struction of the renal artery has been chronic due arteriosclerosis or thrombosis in the renal artery or the aorta adjacent to renal arterial orifices. Primary atment is nephrectomy, resulting in prompt re- ssion of hypertensive symptoms, although equivocal ults have been obtained after thromboendoarterec- ny of the aorta with curettage of the renal artery bilateral arterial homografting of the renal arteries. e patient observed presented symptoms of hyper- nsion and nonfunction of the left kidney 10 days er resection of a thrombosed abdominal aorta. Hy- rtension was supposedly due to embolization of a fragment of thrombus from the aorta into the artery coincidental to curettage of the abdominal aorta at the level of the renal artery orifices. An alternate suggestion is that occlusion of the same artery is due to the occurrence of a complete thrombosis in the already partially occluded left renal artery resulting from the 20-minute period of aortic occlusion proximal to the renal arteries. Hypertension was reduced immediately following nephrectomy and remained within normal ranges for 17 months commensurate with functional improvement of the remaining kidney.

Comparison of Side-effects After Partial Gastrectomy and Vagotomy and Gastro-enterostomy. H. T. Cox. Brit. M. J. 1:1211-1214 (May 25) 1957 [London].

The side-effects in 100 patients who have had partial gastrectomy for duodenal or anastomotic ulcer were compared with the side-effects in 100 patients with duodenal ulcer treated by vagotomy and posterior gastroenterostomy. Each type of operation was carried out in comparable and unselected cases. Of the 100 patients subjected to partial gastrectomy, 83 had duodenal ulcer and 17 had anastomotic ulcer after posterior gastroenterostomy or pyloroplasty. The average time between the date of operation and that of the follow-up examination was 4 years and 5 months. No regurgitation or negligible regurgitation occurred in 95 patients. Fifty-five patients were able to take a normal-sized mixed meal, and 45 were not able to do so. Thirty-five patients, 6 of the group of 55 and 29 of the group of 45, were deprived by partial gastrectomy of their ability to take a dessert. Dumping, i. e.. attacks consisting of vertigo, weakness, palpitation, and sweating, occurred in 19 patients. and in 13 of these dumping was directly induced by milk, milk puddings. fatty foods, eggs, chocolates, and pastries. In 3 of these patients, dumping was, in addition, produced by a large meal.

The average time of postoperative follow-up in the 100 patients subjected to routine abdominal vagotomy and posterior gastroenterostomy with the stoma in the pyloric antrum was 2 years and 9 months; 92 did not have regurgitation or had only negligible regurgitation. Seventy-seven patients were able to take a normal-sized mixed meal and 23 were not. Nine patients, 1 of the group of 77 and 8 of the group of 23, were deprived by vagotomy and gastroenterostomy of their ability to take a dessert. Dumping occurred in 12 patients, and in 6 of these dumping attacks bore a definite relation to meals, 2 having dumping after hot milk, 1 after "horlicks," 1 slightly after fatty foods, and 1 after the midday meal irrespective of its nature; 1 had 2 attacks a month, usually after breakfast. Selective impairment of digestion after partial gastrectomy occurred in 30 who were not able to take milk, in 30 not able to take milk puddings. in 25 not able to take fatty foods, and in 20 not able to take eggs. Selective impairment of digestion after a vagotomy and a posterior gastroenterostomy occurred in 7 who were not able to take milk, in 10 who were not able to take milk puddings, in 17 who were not able to take fatty foods, and in 14 who were not able to take eggs.

There is no material difference in the incidence of biliary regurgitation after a partial gastrectomy and that after a vagotomy and a gastroenterostomy; the incidence of dumping is less after vagotomy and gastroenterostomy. The outstanding advantage of vagotomy and gastroenterostomy over partial gastrectomy is in the nutrition of the patient; more patients take a normal-sized meal, more patients take a dessert, and fewer patients suffer from a selective impairment of digestion—and the difference in all 3 points is substantial.

NEUROLOGY & PSYCHIATRY

Acid-Base Balance of Patients in the Respirator Because of Respiratory Paralysis Due to Poliomyelitis.

W. Droese, H. Stolley and H. Cailloud. German M. Month. 2:132-136 (May) 1957 (In English) [Stuttgart, Germany].

The acid-base and water metabolism were measured in 5 patients with poliomyelitis with a purely spinal respiratory paralysis without severe complications, who were placed in a respirator. Fluid balance and blood carbon dioxide, oxygen, chloride, sodium, potassium, alkali reserve, and pH were determined. An ionogram was constructed from these data in each case. Ventilation and various measures of treatment were adjusted accordingly. In the first patient, a 21-year-old man, electrolyte and oxygen values illustrated the response in acid-base metabolism during the initial period when the patient was placed in the respirator. The electrolyte pattern in the second and third patients, a 36-year-old man and a 27-year-old woman, served as examples of the response of the acid-base balance during the maintenance period of artificial respiration. The last 2 patients, a 14-year-old boy and a 24-year-old man, illustrated the problems connected with the "withdrawal" period when they were taken out and kept outside the respirator.

The observations in these patients indicated that electrolyte and water balance in respiratory paralysis caused by poliomyelitis are affected even if there are no complications. In the initial period of artificial respiration the patient passes from *respiratory acidosis* to *metabolic alkalosis*. Any respiratory acidosis requires an increase of blood bicarbonate for restoration of acid-base balance. The increase of blood bicarbonate in respiratory acidosis is physiologically due to a decrease of chlorides and organic acids. Respiratory acidosis in the initial perod of artificial respiration differs from the physiological reaction by an even greater decrease of plasma chlorides than would correspond with the increase of bicarbonate. This hypochloremia runs parallel to a minimal elimination of chlorides in the urine. Depletion of chlorides occurs if artificial respiration is initiated late or is inadeq The loss of chlorides results from increased eli tion of urinary chlorides before the initiation of a cial ventilation and coexisting respiratory acidos addition, it is due to a more or less severe dis associated with inadequate food intake; as the ion concentration in the blood remains normal anion deficit due to the decrease of chlorides mu leveled off by the body through an increase in the radicle. During the maintenance period of arti *respiration the patients are usually* hyperventil Not all difficulties are overcome by avoiding ch respiratory alkalosis and maintaining adequate v lation. *Febrile illness*, myocarditis, and pulmo disease lead to an increase of carbon dioxide ten in the blood; in this way, without changing the r and depth of respirator action, respiratory acidosis develop. This danger becomes greater the longer the more pronounced the lowering of bicarbonate a respiratory alkalosis. A frequent error during the w drawal period is to allow repeatedly the frequ alternation from respiratory alkalosis to acidosis, w is due to *inadequate* autoventilation of a patient, w hyperventilated in the respirator, is forced to dep too much on his own respiratory effort in the inten ing period outside the respirator. A characteri metabolic disturbance may then develop into a c comitant metabolic and respiratory acidosis.

Deviations from normal ventilation are unavoida *in patients with bulbar poliomyelitis when* they first artificially ventilated in the respirator, dur maintenance of artificial ventilation, and when be weaned from it. A large number of clinical sympto *is caused by a disturbed water or electrolyte* bala It is urged that, in addition to the customary con of clinical and respiratory features, acid-base a water balance be regularly determined.

Recent Observations on Temporal Arteritis (with sideration of the Literature Since 1949 and 2 Observations).

K. Panter. Deutsche Ztschr. Nerv 176:219-232 (No. 2) 1957 (In German) [Berlin].

Temporal arteritis occurs in persons of adva age, showing a steep rise in incidence in person tween the ages of 55 and 60 and a peak around 70th year of life. Histological studies on the e vascular system, as well as biopsies from various v cular regions, revealed temporal arteritis to b systemic rather than a localized vascular disease. T arteritic process originally involves the tunica m and for this reason it has been identified anatom as mesarteriitis granulomatosa gigantocellularis. The classic clinical concept of temporal arteritis charact ized by pulseless, hardened, tortuous, and extrem painful temporal arteries accompanied by a h erythrocyte sedimentation rate, anemia, and prog sive cachexia has been greatly extended since t involvement of other vascular regions has been rec nized. These patients may have gangrene of the emities and meningitic symptoms, and some may ecome blind without apparent involvement of the emporal arteries. Involvement of the eyes is the most equent complication of temporal arteritis; it occurs n from 30 to 50% of the patients.

The first of the 2 patients with temporal arteritis hose histories are described had miotic pupils and tosis of the left upper eyelid and, after about a year, eveloped an irreversible amaurosis and total atrophy f the optic nerve. The persistence of pain in the neck nd in the heart together with the accelerated erythrocyte sedimentation rate suggested that the occipital nd coronary arteries were involved in the arteritic rocess. The second patient first presented signs of a ymptomatic depression, and after that the arteritic rocess in the temporal arteries became evident. In he course of the further deterioration the patient had a severe hepatitis with retarded convalescence. Psychological and neurological manifestations should lways be thoroughly investigated, because these may e brought on by senility and cerebral sclerosis. The rteritic process probably often involves the cerebral rteries. The morphology and the development of temporal arteritis is decisively influenced by arteriosclerosis. On the basis of the most recent observations temporal arteritis belongs to the group of rheumatic or pararheumatic disorders. This concept is further corroborated by the striking therapeutic results obtained with corticotropin and cortisone.

Epidemiology of Poliomyelitis: Investigations in the Population of Basel and in Some Military Units of Switzerland. **E. Berger, J. Marti and B. von Deschwanden. Schweiz. med. Wchnschr. 87:589-593 (May 18) 1957 (In German) [Basel, Switzerland].**

Epidemiologic and serologic investigations and the demonstration of neutralizing virus antibodies were carried out in the Canton of Basel and in several military units. The spread of poliomyelitis in Basel is limited and slow. This is partly due to the relatively high standard of living in the population, with a correspondingly high degree of sanitation. A more frequent occurrence of virus neutralizing antibodies was found in families in whose living quarters bathing facilities were not present. All 3 types of poliomyelitis virus were completely absent in 23.5% of the age group 10 to 11, and only 17.6% possessed antibodies against all 3 types. Poliomyelitis virus type 1 was found the most common infectious agent of poliomyelitis in the age groups 0 to 2, 5 to 6, and 19 to 24. The smaller distribution of virus types 2 and 3 might be of subsequent epidemiologic significance. The high contagiousness of the poliomyelitis virus observed in the younger age groups and demonstrated by the complement-fixation test was also found in military units, in which a case of poliomyelitis occurred. The frequency of clinical compared with inapparent infection was very low, despite the high contagiousness of this disease. Half of the persons in the military units, consisting of 28, 105, and 280 men, respectively, were recently infected by poliomyelitis virus, but only 3 clinical cases occurred. Only 15% of 475 persons without any demonstrable contact in Basel city were recently infected, thus indicating the low index of contagiousness and the easy transmission of the poliomyelitis virus in the population of a city. The index of contagiousness of poliomyelitis for the year 1956 in Basel was 1:190 to 1:290.

GYNECOLOGY & OBSTETRICS

Cortisone and Specific Antibiotics for Resistant Pelvic Infections. A. Hurtig. Am. J. Obst. & Gynec. 73:1183-1186 (June) 1957 [St. Louis].

Forty-five selected female patients with resistant pelvic inflammation were given combined treatment with anti-inflammatory adrenal cortical steroids and proved specific antibiotics. Twenty patients with resistant gonorrheal cervicitis and recurrent salpingitis were completely cured. Ten of these were followed up for from over 3 to 6 years. In this group there were 5 pregnancies, 1 of which, however, was ectopic. Some of these patients had been ill for 1 year or 2; relief of pain in all was complete. The so-called chronic cervicitis, which is really a subacute lesion, cleared completely in all these patients. Excellent results were obtained in patients with chronic endocervicitis. When deformity, tear, hypertrophy, or Nabothian cyst or scar formation had occurred, temporary remissions only could be obtained. Twenty patients with postpartum, postabortal, or postcauterization pelvic cellulitis, with or without tubo-ovarian abscess, all had complete remission. The amount of residual damage by scar depended directly on the duration of the disease before combined treatment. Five patients with generalized peritonitis with intestinal obstruction were successfully treated. There were no deaths. Complications of steroid therapy occurred in many patients but subsided as the dosage was decreased.

The combined use of cortisone and proved specific antibiotics will hasten cure in patients with resistant pelvic infections. The earlier this combined treatment is practiced, the less will be the final total tissue damage. The more acute the lesion, as indicated by cervical discharge, tender granulation tissue, fever, leukocytosis, and elevated sedimentation time, the more immediate and permanent are the benefits of such treatment. The lesions will not recur if therapy is adequate and is practiced early enough. The combined treatment is the method of choice for resistant gonorrheal lesions and early tubo-ovarian abscess after pelvic cellulitis. Accessible abscesses should always be treated by early, adequate surgical drainage. Once scar tissue has been laid down, the combined treatment is of no value. Repetition and confirmation under similar conditions by other workers is recommended. Until that time, treatment should be considered experimental and used only under the most careful supervision.

Endometriosis in the Vaginal Scar Following Hysterotomy for Therapeutic Abortion: Report on 100 Cases. T. Gottlieb. Acta obst. et gynec. scandinav. 36:194-208 (No. 2) 1957 (In English) [Stockholm].

The author reports on 100 women with endometriosis in the vaginal scar after hysterotomy for therapeutic abortion. The endometriosis did not cause discomfort in 28 patients. Sixty-one of the remaining 72 patients had *dysmenorrhea*, 36 had dysuria, and 32 had dyspareunia. As a rule these symptoms were not noticed until some years after the hysterotomy, and only 3 patients felt discomfort in the first year after the operation. Vaginal speculum examination did not reveal bluish cysts on the front of the cervix in 58 patients, but one or more tender nodes or infiltrates were palpable on the site of the scar or in its vicinity in these patients. Moderate digital pressure in palpating this area of infiltration reproduced the abdominal pain which had caused consultation with the gynecologist. Of 67 patients who were checked for this symptom, 65 had it. Cystoscopy revealed that the infiltration had spread to the urinary bladder in 12 patients.

Fourteen patients with severe symptoms and widespread lesions were operated on. Ten of these became free from symptoms, 2 had recurrences, 1 was operated on too recently for evaluation, and 1 died after the operation. Twenty-five patients were given local treatment with androgenic hormone in microcrystalline suspension; 50 mg. of a proprietary preparation of *testosterone propionate* was injected monthly into the palpable lesion 8 to 10 days before the menstrual period for 3 to 5 menstual cycles. Eighteen of the 25 patients became free from symptoms. The most natural explanation of endometriosis in the scar after hysterotomy for therapeutic abortion seems to be the transplantation of groups of cells from the decidually transformed endometrium. Although there are many women in whom endometriosis in the vaginal scar after hysterotomy causes little or no discomfort, endometriosis must be regarded as a serious complication to which due attention should be paid when considering whether or not to perform therapeutic abortion by hysterotomy.

The Value of Irradiation Therapy in the Treatment of Endometriosis. A. Brosset. Acta obst. et gynec. scandinav. 36:209-225 (No. 2) 1957 (In English) [Stockholm].

The hospital records of 101 women with endometriosis treated by irradiation in the gynecologic department of the Radiumhemmet in Stockholm were studied. Ninety-seven were treated by conservative irradiation and 4 by x-ray sterilization. Conservative irradiation therapy consisted either of x-ray treatment with small doses of 100 or 150 r delivered to the lesion from 2 or more portals and repeated once or several times or in application of radium directly to the lesion through the vagina. Of the 97 with conservative irradiation therapy a diagnosis of ovarian endometr was made in 38, a diagnosis of endometriosis in t rectovaginal septum in 33, and a diagnosis of e metriosis in different places of the body such as vagina, right groin, labium majus, and umbilicus 26. The diagnosis in 84 patients was confirmed ei histologically or by clinical findings.

Sixty-nine of these 84 patients were subjecti and objectively free from *symptoms or* were marke improved after irradiation therapy. Fifteen patie were therapeutic failures. The menstrual period appeared after a period of amenorrhea of v length in 55 patients, and a permanent amenorrh resulted in 19. In the remaining 10 patients amenorrh had resulted from a previous hysterectomy before t institution of the irradiation therapy. Encouraging r sults were obtained with direct application of radi to the lesion through the vagina in a few patients w endometriosis in the scar after vaginal hysteroto performed for therapeutic abortion. The reported d justify the use of irradiation therapy on a larger sc than has hitherto been done in the treatment of tients with endometriosis in whom surgical interv tion presents difficulties.

Succinylcholine Drip in Cesarean Section. P. Kol and K. F. Schye. Acta obst. et gynec. scandinav. 233-249 (No. 2) 1957 (In English) [Stockholm].

The cases of 137 women delivered in 1952 *cesarean section with the aid of pure nitrous* ox ether anesthesia were compared with those of women delivered in 1954 by cesarean section with aid of anesthesia produced by a succinylcholine (2 per mille in dextrose solution) combined nitrous oxide and oxygen *in a ratio of* 3:1. Comp tions during anesthesia such as excitation, cyan secretion of mucus, and vomiting ocurred in 46.6 the patients given ether anesthesia as compare 21.1% in those given succinylcholine anesthesia. H orrhage, pneumonia, thromboembolism, and infe occurred in 46 patients, and hysterectomy was formed in 3 patients after ether anesthesia, a incidence of 35.6% of postoperative complicat hemorrhage, pneumonia, thromboembolism, and fection occurred in 32 patients (19.9%) after succ choline anesthesia, and hysterectomy had not ha be performed in any of these patients. Serious f asphyxia occurred in 8.5% and mild fetal asphyxi 3.6% as a result of ether anesthesia, while the co sponding figures for succinylcholine anesthesia w 0.77 and 2% respectively. The corrected infant mor ity rate was 0.8% in the group with ether anesth against no infant mortality in the group with succi choline anesthesia.

Succinylcholine drip combined with administrat of nitrous oxide appears to be an ideal method anesthesia in women subjected to cesarean secti Optimal working conditions may be provided for geon by this method, and the mother is exposed to inimal strain. Apparently succinylcholine does not a rule pass into the fetus in sufficient amounts to duce asphyxia. Nor is the contractibility of the rus observed to be influenced by the anesthetic. e method produces rapid induction, in about 3 nutes, and the patient is awake at the end of the eration. Succinylcholine may be used as an anes-tic agent in all types of cesarean section, regardless indications.

nital Endometriosis and Pregnancy. J. C. Ahumada, L. Sardi and L. A. Arrighi. Obstet. ginec. latino-ner. 15:15-26 (Jan.-Feb.) 1957 (In Spanish) [Buenos res, Argentina].

Pregnancy rarely occurs in women with genital dometriosis. Four hundred sixty-five patients with nital endometriosis were observed during a period 27 years in a Maternity Hospital of Buenos Aires. egnancy occurred in 17 patients. Five patients of 1 with internal uterine endometriosis became preg-nt. Pregnancy was intrauterine in 4 and ectopic tramural) in 1. Perforation of the walls occurred in of the patients with intrauterine pregnancy as a sult of therapeutic curettage. Pregnancy did not cur in any of the 90 patients with ovarian or external eritoneal endometriosis. Ectopic tubal pregnancy ccurred in 12 of 50 patients with tubal endometriosis. In the remaining 103 patients endometriosis was resent in structures rarely involved by this process nd in which pregnancy does not as a rule occur. The uthors make the following conclusions: 1. Internal terine endometriosis weakens the uterine walls dur-ng pregnancy, predisposing the uterus to spontaneous upture or to perforation during therapeutic curettage. . Internal uterine endometriosis may cause dystocia. It may also cause a severe atony, hemorrhage, and other severe complications. 3. Ovarian or external peritoneal endometriosis prevents the occurrence of pregnancy. 4. Tubal endometriosis is a frequent cause of tubal pregnancy. Endometriosis located in struc-tures which are rarely involved by this condition pre-vents, as a rule, the occurrence of pregnancy. Regardless of the site of endometriosis, pregnancy elicits a decidual reaction which stimulates the growth of the endometrial lesions. The reaction subsides when pregnancy is near full term. It is so marked as to simulate in some cases malignant proliferation of local tissue.

The Nature and Origin of the Mammotrophic Agent Present in Human Female Urine. G. Hadfield. Lancet 1:1058-1061 (May 25) 1957 [London].

The urine of normal premenopausal women, when injected into weanling males of certain strains of albino mice, induces growth response in their primitive mammary glands. The urine of 57% of normal postmenopausal women also contains this mammotrophic agent. The author cites experimental studies that suggest, but do not definitely prove, that the mammotrophic agent present in female urine is pituitary prolactin. Preoperative tests were carried out on 7 patients with metastatic breast cancer in whom hypophysectomy was under consideration. The urine of 3 patients was found to be mammotrophic, and hypophysectomy in these was followed by regression of growth in the tumor and its metastases. No regression followed the operation in the remaining 4 patients, whose urine failed to produce a mammary response in intact male weanling mice of a strain known to be sensitive both to urinary mammotrophin and to prolactin. These results suggest that an estimation of the mammotrophic potency of the urine, by providing information regarding the mammotrophic function of the hypophysis, might be of assistance in the selection of patients with breast cancer likely to benefit from hypophysectomy. Such a test, however, carries serious clinical implications, and it would be unjustifiable to advocate its use until more is known about the organ of origin of the mammotrophin in human urine. The investigations reported here were designed to solve this problem.

Experimental evidence was produced supporting the conclusion that human female urine contains pituitary prolactin at concentrations varying from 0.01 to 0.25 I. U. per milliliter. It is suggested that an estimation of urinary prolactin may materially assist in the selection of those patients with metastatic breast cancer who are likely to benefit from hypophysectomy. It is also suggested that, for the bioassay of prolactin in human urine, potent urinary extracts (which can be preserved indefinitely) should be injected into hypophysectomized male weanling mice of the Strong A_2G strain.

PEDIATRICS

Aortic Stenosis in Young Persons. E. W. Sørensen and A. Tryggeseth. Tidsskr. nórske lægefor. 77:386-388 (May 1) 1957 (In Norwegian) [Oslo].

Aortic stenosis in younger persons has usually been considered a rheumatic disease, but it is now believed that a congenital form exists. The disease is marked by a slow stage with few or no subjective symptoms. In recent years roentgenologic cardiac-aortic signs have been described which strongly support the diagnosis. In 6 of 14 children with congenital pure aortic stenosis Kjellberg and his associates found a localized distention in the suprabulbar segment of the ascending aorta, and in all cases there were increased pulsations in the ascending aorta, especially definite in the suprabulbar segment. As the patients grow older, calcifications in the valves are seen roentgenologically. Four cases of aortic stenosis in young persons admitted to Rogaland Hospital during the last year are described. The prognosis is unfavorable in cases of grave congenital aortic stenosis which give subjective symptoms in early childhood. Progressive cardiac failure, bacterial endocarditis, and sudden death may supervene. Patients with milder congenital aortic stenosis without symptoms in childhood can reach a high age, even though in most cases there is slow progression of the stenosis and now and then a mild degree of insufficiency.

A Study of Acute Respiratory Disease in Infancy. W. C. Taylor and C. H. Read. J. Pediat. 50:679-689 (June) 1957 [St. Louis].

One hundred infants of less than 3 years of age were studied during 2 6-month periods throughout the winter months of 1953-1954 and 1954-1955. They all suffered from respiratory infections sufficiently severe to require hospitalization. They were divided into 5 equal groups: the 1st group was given 0.1 Gm. sulfamethazine per pound per day; the 2nd 30,000 I. U. dipenicillin G dibenzylethylene diamine in addition to 0.1 Gm. of sulfamethazine per pound per day; the 3rd 10 mg. of chlortetracycline per pound per day; the 4th 10 mg. of oxytetracycline per pound per day; and the 5th 10 mg. of tetracycline per pound per day. No significant differences between the 5 groups were observed when failure rate, temperature response, and duration of hospitalization were compared. Minor toxic effects such as diarrhea, vomiting, and skin rashes were seen more frequently in the 3rd, 4th, and 5th groups. Sulfamethazine and sulfamethazine plus penicillin were more effective in patients with pneumococcic infections than broad-spectrum antibiotics.

Rheumatic Fever: Prevention of Recurrence with Penicillin Given Orally. B. Dowd and H. Walsh. M. J. Australia 1:598-602 (May 4) 1957 [Sydney, Australia].

Penicillin G was given continuously by mouth for an average period of 22 months to 46 boys and 40 girls with rheumatic fever. Of the 86 children, 68 had had 1 attack of rheumatic fever, 12 had had 2 attacks, 5 had had 3 attacks, and 1 had had 1 attack when they first received penicillin. One tablet consisting of 100,000 units of crystalline penicillin G with 135 mg. of cane sugar was given 3 times daily half an hour before a meal. A control group of 166 children with rheumatic fever did not receive penicillin by mouth, but some of them were given 0.5 Gm. of sulfadiazine twice a day for varying periods after their 1st, 2nd, 3rd, or 4th attack. Comparison of the 2 groups showed a significant reduction of the recurrence rate in the penicillin group. No side-effects were observed. No infection was caused by penicillin-resistant organisms. It was not possible to assess the value of penicillin in the prevention of cardiac damage in the rheumatic children. Prophylactic treatment against streptococcic infection should be given to all children with rheumatic fever or solitary chorea to prevent recurrence. Prophylaxis should be continued throughout childhood and adolescence and probably for longer.

Corticotropin (ACTH) Therapy of Nephrotic Sy
drome in Children: I. Clinical Results and Effects
Proteinuria in 106 Instances. F. U. Mateer, F.
Wegand, L. Greenman and others. A. M. A. J. D
Child. 93:591-603 (June) 1957 [Chicago].

Seventy-two children, 45 boys and 27 girls, with t
nephrotic syndrome, 60 of whom had depend-
edema or anasarca, were given 106 courses of trea
ment with corticotropin (ACTH). Patients with hype
tension, azotemia, and morphologic elements were
excluded. Corticotropin in amounts of 100 mg. a
occasionally 200 mg. in divided doses was given da
for 4 weeks, usually without interruption, and th
patients were maintained on diets containing 2 to
mEq. of sodium and 150 mEq. of potassium and we
given penicillin or other antibiotics prophylacticall
supplementary iron, and vitamins. A remission result
in 57 of the 68 children who are still living. The 9 w
failed to respond at least once included 3 pati
with chronic azotemia. Forty-eight patients were f
lowed up for 1 year or longer, and 30 of these we
followed up for 2 to 7 years.

Within this period there have been 4 deaths, n
of which occurred during corticotropin therapy:
patient died with terminal uremia, in 2 others br
chopneumonia was present at death together
moderate azotemia and endocardial sclerosis in
death resulted from septicemia caused by Micrococ
(Staphylococcus) pyogenes var. aureus and assoc
with purpura in the 4th. Twenty patients had 1
more recurrences after an initial satisfactory respo
and 18 were again well after retreatment. Of the
living children 50 are known to be entirely well a
1 or more courses of treatment and 7 others were
tirely well when last seen, but follow-up within
past 6 months to 1 year was not possible. Serious c
plications of corticotropin therapy included infecti
personality change, and transient steroid diabe
Systolic and diastolic hypertension usually appe
during treatment and may well have been a deci
factor in the occurrence of convulsions in 6 patie

The mortality figures to date suggest that ther
modification of the underlying course of the dis
in addition to control of the symptoms and signs,
vided one keeps in mind the custom in many se
collected from the literature of excluding "nephri
patients. Only adequate follow-up will determi
however, whether chronic nephritis may still
velop in patients whose nephrotic syndrome resolv

Corticotropin (ACTH) Therapy of Nephrotic Syndro
in Children: II. Laboratory Findings in 106 Instanc
T. S. Danowski, F. A. Weigand, L. Greenman a
others. A. M. A. J. Dis. Child. 93:604-614 (June) 19
[Chicago].

The authors report alterations in the morpholog
elements of the blood, in serum and blood solut
and in urinary reducing substances and 17-ketostero

re, during, and after 106 courses of corticotropin apy in 72 children with the nephrotic syndrome se clinical results have been described in the pre- ng paper. The leukocyte count in peripheral blood to an average of 12,000 to 13,000 per cubic milli- er during the 2nd, 3rd, and 4th weeks of therapy, hing values as high as 28,000 without evident in- ion; during this same period the average per- tage of polymorphonuclear cells increased to 72 n a pretreatment range of 56, with individual es as high as 96%; the metamyelocytes increased number while the lymphocytes fell. Pretherapy ues were attained within 1 week of the termination corticotropin administration. About 25% of the pre- atment whole blood nonprotein nitrogen concen- tions were above 40 mg. per 100 cc., pointing to presence of a moderate degree of renal failure. By third week of therapy all values had decreased to s than 50 mg. per 100 cc. despite the increased nitro- n load which accompanies corticotropin administra- n. After completion of the course only scattered ht elevations of the nonprotein nitrogen level were orded.

The fasting blood sugar levels increased during rapy and decreased to the pretreatment values at completion of the course. Concentrations above 4 mg. per 100 cc. were recorded in only 2 patients. 1 of these the blood sugar level of 370 mg. per 100 and the presence of persistent glucosuria without tonuria during the 4th week of treatment pointed the presence of steroid diabetes, which disappeared completion of the course of corticotropin. The ex- tion of unidentified reducing substances in urine reased during therapy. Hypoalbuminemia present varying degree in most but not all of the patients s gradually replaced by normal serum albumin lues beginning during the second week of treatment; casional patients also showed marked lowering of e serum globulin values which disappeared during rticotropin administration. Hypercholesterolemia as present in most patients; though the elevations of holesterol concentrations were almost always associ- ed with hypoalbuminemia, the reverse was not true. retherapy decreases in serum total carbon dioxide ontent and rises in serum potassium level could not lways be related to renal failure as reflected by azo- emia; during corticotropin treatment, the serum po- assium and chloride levels fell while the serum total arbon dioxide content rose. This pattern of hypo- otassemia-hypochloremia-alkalosis occurred despite arked restriction of sodium intake.

The tendency to pretherapy hyponatremia was not lways associated with hypercholesterolemia, pointing o the existence of hypo-osmolarity, undue water re- ention, or a new steady state as the probable causa- ion. Though precorticotropin hypocalcemia disap- eared during treatment as the serum albumin level ose, the serum calcium levels were not always low in atients with hypoalbuminemia. This suggests binding y globulins or alteration in the physical properties of albumin resulting in their precipitation as globulins. Corticotropin produced a lowering of serum inorganic phosphorus levels which disappeared at completion of therapy. Though the excretion of 17-ketosteroids usually rose, equally good clinical responses to corticotropin were observed in patients who did not show this change.

UROLOGY

The Use of Radioactive Gold Grains in the Treatment of Bladder Growths. J. G. Yates-Bell and C. Q. Henriques. Brit. J. Urol. 29:97-111 (June) 1957 [Edinburgh].

The majority of bladder tumors are radiosensitive, and the best results are obtained in cases in which some form of irradiation is used as an adjunct to surgery. At King's College Hospital total cystectomy is reserved for severe papillomatosis, for extensive carcinomas in situations where irradiation might result in fistula formation, and as a palliative in cases of persistent hemorrhage or pain. Partial cystectomy gives such bad results that it has ordinarily no place in the treatment of bladder tumors. The improvement in transurethral technique has led to the removal of small malignant growths by endoscopic resection, but for the larger neoplasms resection by the suprapubic route remains the operation of choice. Such resections should, whenever possible, be accompanied by interstitial radiotherapy. The development of numerous radioactive isotopes in recent years has led to the adoption of other sources of interstitial irradiation. In 1951 a repeater gun was introduced whose object was to implant small radioactive sources into body tissues with precision. Radioactive gold grains implanted with this gun are now being used for all interstitial irradiation of bladder tumors at this hospital, and a method has been devised whereby the grains may be implanted by suprapubic puncture or by transurethral and per vaginal puncture. Thus interstitial irradiation can be provided for the smaller bladder neoplasms. The isotope used is Au^{198}, and the grains, which are cylindrical in shape, measure approximately 0.5 mm. diameter by 2 mm. in length and are screened with 0.1 mm. Pt. The specific activity of each grain at the time of implantation is 4.5 mc., and the isotope half-life is 2.7 days. The dose given to the tumor should be between 6,000 and 7,500 r. The gold grains are activated in the atomic pile.

All growths should be resected by diathermy before gold grains are implanted, the aim being to leave a tumor base not more than 1 cm. thick. Three different methods of implanting the grains were used: insertion by suprapubic puncture in 12 patients; per urethram and per vaginam in 7 women, 5 of whom had advanced growths; and by suprapubic cystotomy in 31 patients. Suprapubic cystotomy should still be used for the larger growths, but the smaller ones may be treated by suprapubic puncture in the male and transurethral and per vaginal implant in the female.

Cures may be expected whether the bladder is opened or not, and relief may often be provided for hopeless cases. The object is not to replace open operation by closed methods but to widen the field of interstitial radiotherapy to include the small early growths at one end and the larger inoperable growths at the other, aiming in the first case at a cure and in the second at palliation.

Renal Artery Aneurysm: Report of 12 Cases, Two Treated By Excision of the Aneurysm and Repair of Renal Artery. E. F. Poutasse. J. Urol. 77:697-708 (May) 1957 [Baltimore].

Renal artery aneurysm is probably more common than autopsy or clinical reports indicate. Findings on 12 additional patients, observed since 1952, are presented. Aortography now provides the urologist with an accurate means of diagnosis of renal artery aneurysm and, with modern techniques of arterial surgery, many cases will be recognized and treated successfully. Seven of the 12 patients reported had a saccular aneurysm (one had multiple saccular microaneurysms associated with partial stenosis of the renal artery), 3 had poststenotic or jet aneurysms in association with hypertension, 1 had a fusiform aneurysm in association with a hypernephroma, and 1 had a large arteriovenous aneurysm. Aortography is a valuable means of establishing the diagnosis of aneurysm and of differentiating calcified arteriosclerotic plaques within the wall of the renal artery. Aortography has also proved of value in the demonstration of unusual noncalcified types of renal artery aneurysm in hypertensive patients. Excision of the aneurysm and repair of the renal artery were performed in 2 of the patients having congenital saccular aneurysm; postoperatively, normal renal function was demonstrated in each. It is believed that large, symptomatic aneurysms, especially in hypertensive patients, should be treated by excision or nephrectomy, whether calcified or not. Small, asymptomatic, calcified aneurysms in nonhypertensive patients probably can be followed without surgical treatment.

PATHOLOGY

Adrenal Lesions in Acute Meningococcemia. J. B. Thomison and J. L. Shapiro. A. M. A. Arch. Path. 63:527-531 (June) 1957 [Chicago].

Autopsies were performed in 27 patients whose deaths had resulted from acute meningococcemia. Of the 27 patients, 6 were not older than 1 year, 15 were between the ages of 1 and 19 years, and 6 were between the ages of 20 and 54 years. The authors' report is concerned only with the adrenal changes observed in these patients. The adrenals of 4 of the 27 patients were much increased in size, and on microscopic examination the more or less complete ablation of the cortex by massive hemorrhagic necrosis was observed. The hemorrhage affected first the zona reticularis gradually migrated outward until the entire c was hemorrhagic. The medulla was characterist spared. The adrenals of 10 patients showed mul small areas of hemorrhagic necrosis, which was a ciated with thrombosis of the sinusoids or l vessels in 5. Two of these patients showed da which was estimated to be almost as great as caused by massive hemorrhage. The 3 zones, i. e., z fasciculata, glomerulosa, and reticularis, tended t uniformly involved. Most of the patients with patchy type of necrosis also showed extensive tub degeneration, and 9 other patients showed tub degeneration alone. In contrast to massive hem rhage, tubular degeneration begins in the zona merulosa and is more marked here, gradually mo inward. The remaining 4 patients showed only min tubular degeneration and loss of cortical lipids.

The patients with massive hemorrhagic necrosis w not older than 2½ years, and all of them died wit the first 24 hours. It appears very likely that no pati survives bilateral massive hemorrhagic necrosis of adrenal, which tends to occur early in the cours meningococcemia. The results of these anatomic st ies as well as the clinical course of surviving pati suggest that adrenal lesions other than massive hem rhage are reversible, with complete restoration adrenal cortical function. Although acute meningoc cemia may occur at any age, it is much common young persons, particularly infants.

RADIOLOGY

Stratigraphy in the Investigation for Mitral Calcif tion. E. Rizzetto and G. Sablich. Minerva m 48:1223-1227 (April 11) 1957 (In Italian) [Turin, Ita

Body section roentgenography (stratigraphy) was p formed by the authors on 3 patients, 1 male a female, 28, 23, and 48 years old respectively, were to be subjected to a mitral commissuroto Roentgenologic examination in the frontal and la projections did not show the presence of intracar calcification. Calcareous shadows were observed tween the 10th and 16th plane by means of ant posterior stratigraphy and between the 5th and plane by means of laterolateral stratigraphy shadow the size of a peanut was observed in the f and third patients and a shadow approximately size of a small nut was observed in the second pat The density of the shadow was always marked but always uniform in the different planes. The sh was observed in all patients on the left of the media line; it appeared at the center of the heart in t laterolateral projection. Whether the calcificatio were on the annulus or on the valvular edges co not be determined. The authors think that calcific tions of the annulus or of the valvular edges are contraindication to mitral commisurotomy.

BOOK REVIEWS

Management of the Patient with Headache. By Perry S. IacNeal, M.D., F.A.C.P., Assistant Professor of Clinical ledicine, Jefferson Medical College, Philadelphia, Bernard . Alpers, M.D., Sc.D., F.A.C.P., Professor and Head of)epartment of Neurology, Jefferson Medical College, and Villiam R. O'Brien, M.D., F.A.P.A., Head of Department of 'sychiatry, Pennsylvania Hospital, Philadelphia. Cloth. $3.50. 'p. 145. Lea & Febiger, 600 S. Washington Sq., Philadelphia i, 1957.

It is surprising how much of interest and help ias been gathered between the covers of this uthoritative book. It is true that headache is a ymptom and not a disease, but this is an overimplification, since we are so often confronted y the question: A symptom of what? The paient comes to his physician for relief, and, if his is not quickly forthcoming, he makes the ounds of waiting rooms until he gets it. Hence, liagnosis is important but is often elusive and ndeterminate. Classification of headache is also lifficult, for the causes are many and varied. We nust keep in mind the possibility of such organic diseases as brain tumor or meningitis which nay be irreversible or even fatal. An error in judgment here may castigate a practitioner for life. Since the headache is almost entirely subjective, especially in its beginning, we can get little help from laboratory tests. Even roentgenograms are usually negative, but we may have to use them to satisfy the relatives or friends. Migraine is one of the severest types. These authors say that most patients can be helped by medication, chiefly derivatives of ergot. Much space is given to this dictum concerning usage and expected results.

Chapter 5 is, perhaps, the most important in the book, since it deals with differential diagnosis and treatment. Chapter 6 describes diagnostic techniques with detailed suggestions for history taking and the physical examination. The authors seldom use spinal tap, which they think is useless in all functional cases and may be indeterminate. They warn that, if during the procedure the respiration becomes changed, it is well to have a 10-cc. syringe ready with normal saline solution for immediate injection into the spinal canal.

Handbuch der Orthopädie in vier Bänden. Herausgegeben von Prof. Dr. G. Hohmann, Prof. Dr. M. Hackenbroch, Direktor der Orthopädischen Universitätsklinik Koln, und Prof. Dr. K. Lindemann, Direktor der Orthopadischen Universitätsklinik Heidelberg-Schlierbach. Band I: Allgemeine Orthopädie. Bearbeitet von C. Bischofberger et al. Cloth. 178 marks; $42.40. Pp. 1186, with 632 illustrations. Georg Thieme Verlag, Herdweg 63, (14a) Stuttgart N, West Germany; [Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16], 1957.

About 23 authors have contributed to this volume, the first in a series of four, that will constitute an orthopedic encyclopedia rather than a handbook. The book is well organized, and some chapters make delightful reading. This volume starts with an interesting chapter on the history of orthopedic surgery. Weill's chapters entitled Congenital Diseases of the Skeletal System and Other Bone Diseases are outstanding. Unfortunately, they are practically devoid of illustrations, especially in the part dealing with benign tumors. While this volume furnishes a thorough theoretical background and should stimulate thought, therapy has been neglected. Most chapters are presented in a clear and understandable manner. The chapter on metabolic diseases and that on osteoporosis due to trauma (Sudeck's atrophy) (here called dystrophy) deserve particular mention. Unhappily, one of the chapters deals with vegetative derailment (Entgleisung), a term unknown in English literature. The chapter on the fundamentals of orthopedic surgery is conspicuously redundant. The chapter on hereditary developmental disturbances is excellent. All in all, the material in this volume is good.

Principles of Epidemiology. By Ian Taylor, M.D., M.R.C.P., D.P.H., Principal Medical Officer (Epidemiology), London County Council, London, and John Knowelden, Lecturer, Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine, London. Cloth. $9. Pp. 300, with 26 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6, 1957.

Ever since the publication of Stallybrass' book, which never went beyond the first edition, there has been a real need for a textbook on epidemiology. The present volume, written by two highly competent English authors, goes a long way toward filling this gap. Purporting to deal with the principles of epidemiology, it contains a clear and at times somewhat simplified exposition of fundamental concepts. Though dealing chiefly with the infectious diseases, adequate attention is given to the application of epidemiological principles to the study of noninfectious conditions, especially to the degenerative diseases. The book is a most welcome addition that should find a place in the libraries of workers in preventive medicine and public health. It is unfortunate, however, that the publishers have set the price so high.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

POSSIBLE ALLERGY TO TUNA

To the Editor:—*Recently a baby ingested a small amount of tuna which was apparently spoiled. Two days afterward he broke out with an urticaria-like rash. This was accompanied by edema of hands, feet, and eyelids, and the urticarial lesions became hemorrhagic. The child was treated with antihistamines and cortisone and made a rapid recovery. Could the fish which he ate produce the symptoms of allergy? F. R. Crouch, M.D., Farmington, Mo.*

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—The edematous, urticarial nature of this response suggests that it is primarily allergic in origin, but it is rather unlikely that an allergic reaction of this degree of severity should have been delayed two days. There is a possibility that this may have been an acute allergic response to a more recent exposure.

Although urticarial responses may be on the basis of food allergy, bacterial allergy, or other causes, there is insufficient evidence here to establish causation. More data as to the nature of the spoilage would have been helpful. As either uncontaminated or contaminated tuna might have caused the reaction, one can only suggest a move to rule out the possibility of sensitivity to tuna. This could be answered by the trial ingestion of a small portion of freshly opened canned tuna.

Answer.—Tuna fish, spoiled or unspoiled, could produce the condition described. The symptoms are those of angioneurotic edema due to food allergy. Although the onset of symptoms was delayed, the prompt response to treatment with antihistamines and cortisone supports this interpretation of the manifestation.

In relatively rare instances fish is the offending and provocative factor in allergy. The published reports do not list tuna as an allergen, but there is no reason to exclude this animal product because it has not been described. As a rule it is difficult to discover the offending food by means of skin tests. It seems certain that tuna, whether raw, cooked, or canned, fresh or spoiled, could produce the condition described in an allergic child. The query states that the tuna was "apparently spoiled" but does not state whether it was canned in the United States. Neither does it state how soon after opening of the can the product was consumed, soon the content was examined, or how the spo was determined. Only by means of delicate che tests can spoilage be detected. The quality of control programs in force, either by specially tra cannery personnel or by outside official inspecto canned products, makes the likelihood of spoiled being canned and sold extremely remote.

PRENATAL EFFECT ON CHILD OF MOTHER TAKING THYROID

To the Editor:—*A 3-month-old girl has a ma exophthalmos. The most important point in the natal history is that the mother took 1½ to 2 gr (0.10 to 0.13 Gm.) of thyroid daily throughout pregnancy for weight control. Could the thy medication have any causal relationship to the ophthalmos of the baby? What should be the fu management for this condition?*

N. W. Nemiroff, M.D., Oradell, N.J

Answer.—Exophthalmos has been observed in fants born of exophthalmic mothers. This may be to exophthalmos-producing substance secreted by maternal pituitary. If this hypothesis is true, the must be assumed that this substance was secrete excessive amounts and also crossed the placental rier into the fetal circulation. Thyroid-stimulating mone apparently does not cross the placental bar and there is no experimental evidence at this that exophthalmos-producing substance does. H ever, if the latter substance did cross the place barrier, then one would also have to assume that mother had some type of thyroid disturbance.

It is stated that the mother received 1½ to 2 gr. of desiccated thyroid throughout her pregnancy weight control. Normally, during pregnancy, the m er has a mild degree of hyperthyroidism, and possible that in this particular case the condition hypothyroid, even though the mother received roid therapy. It is therefore conceivable that her tuitary was hyperactive and that excessive secre of exophthalmos-producing substance occurred. other possibility is that, if the mother had a hyp roid condition, insufficient thyroxin passed the pla into the fetal circulation, and the infant's own pi tary secreted an excessive amount of exophthalmo producing substance.

It is not stated whether the mother had exophth mos or whether she had evidence of hyperthyroidis This information might be enlightening, because co genital hyperthyroidism has been reported in infa

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

rn of thyrotoxic, as well as hypothyroid, mothers. addition to exophthalmos, most of these infants hibit goiter and other signs of hyperthyroidism. owever, Keynes (*J. Obst. & Gynaec. Brit. Emp.* 59: 3, 1952) reported the case of an infant with con- nital exophthalmos, without any signs of toxicity, rn of a mother who had a thyroidectomy for thyro- xicosis. The mother developed progressive exoph- almos postoperatively and gave birth to this infant e year later. Keynes adds: "Here, therefore, we see other example of a hormone transmitted through e placental circulation, though this time it is the yrotropic hormone acting only on the infant's orbits a clinical curiosity that has seldom, if ever, been served before."

It is assumed that the infant has been observed r possible local causes for exophthalmos, namely, mors, inflammatory disease, and congenital malfor- ation of the skull. If she is normal in all other re- ects, observation should be carried out for several onths for possible spontaneous recession of the exoph- almos and for signs of goiter and/or other clinical vidence of thyroid disturbance. Then thyroid func- on studies should be considered, including uptake f radioiodine (I^{131}), protein-bound radioiodine, and erum protein-bound iodine; possible chromatographic udy of the plasma for thyroid hormone and precur- ors might be undertaken. If these studies are not ractical, and there is no evidence of hyperthyroidism, he infant should be treated with desiccated thyroid, ⅛ to ½ grain (8 to 30 mg.) daily, depending on her olerance.

LOSS OF TOOTH ENAMEL

To the Editor:—*A woman, 34 years old, is losing the enamel of her teeth, which are becoming discolored and painful. She is the mother of two children, aged 5 and 2 years, and has no significant history or symptoms. She wore an orthodontic brace on her teeth when she was a child. What can be done for her?*

Louis Gold, M.D., Lido Beach, L. I., N. Y.

Answer.—Discoloration and loss of tooth enamel in an adult is usually of local environmental origin, owing to the materials which contact the teeth. The main nocuous agents in this regard are usually (1) excessive intake of lemon or other foods containing citric or malic acid, (2) use of excessive amounts of refined starches, e. g., hard candies, cough drops, candy-coated chewing gum, sugar in coffee or tea, or sweetened, acidified carbonated beverages, or (3) acid gastric regurgitation. Many other factors, such as change in pH or buffering ability of the saliva due to emotional tension, excessive drying from radiation involving the salivary glands or from mouth breathing, improper or inefficient tooth-brushing techniques, may be involved. In studying dietary intake, it is much better to have the patient keep a dietary diary for a full week rather than to rely on office questioning of the patient.

TREATMENT OF ONYCHOMYCOSIS

To the Editor:—*A patient has onychomycosis of the right hand which has been present for several years and is resistant to x-ray therapy. Scrapings of the nails have verified the diagnosis. There has been no improvement in the clinical state. Would further avenues of investigation and treatment be advisable?*

J. Allen Marshall, M.D., Lawrence, Kan.

Answer.—The treatment of onychomycosis is highly unsatisfactory because the primary site of infection is under the nail plate. Daily scraping of the nail followed by the application of fungicidal preparations may be effective when the involvement is limited to the distal portion of the nails. If only one or two nails are involved and if there is no chronic fungous infection of the hand, surgical avulsion of the affected nails should be attempted even though this procedure may frequently fail.

FUNGOUS INFECTION OF THE VAGINA

To the Editor:—*A 44-year-old woman has had a yeast infection in the vagina for approximately eight months. She had a supravaginal hysterectomy for leiomyoma several years ago. Treatment produces a temporary relief of symptoms, but the infection invariably recurs. The husband's prostatic secretions have been checked, but there is no contributory evidence. This patient has received Mycostatin orally, in addition to therapy with methylrosaniline chloride (Gentian Violet). Good results were obtained by cleansing the vagina with Septisol about three times a week. The patient will remain well for approximately two weeks; then the irritation will recur just as before. What is the best treatment for this condition and how may permanent relief be obtained?*

Alfred H. Hathcock, M.D., Fayetteville, Ark.

Answer.—The case, as described, lacks certain information which might be helpful for a more specific answer. In the first place, the infection is most probably not a yeast infection. Actually the true yeasts do not produce disease. It is assumed that the fungus is Candida (Monilia) albicans. It is assumed that the diagnosis is made on the clinical appearance of the vagina or by finding the mycelia in a wet preparation. Culture methods are not reliable means for the establishment of the diagnosis of these organisms.

The use of detergent and soap preparations is not significantly therapeutic for mycotic infections. Husbands are most unlikely to harbor these organisms in the upper urinary or genital tract, but the husband with a prepuce, and especially if he is a diabetic, may have a mycotic balanitis and thus repeatedly reinfect his wife.

Some postmenopausal women taking excessive amounts of estrogens may produce a vaginal mucosa heavily laden with glycogen-like material and hence be likely candidates for vaginal mycosis. Diabetics with unusually high blood sugar levels may also be predisposed to vaginal mycosis. Even though the urine may be normal on the reduction test, it may be desirable to do a glucose-tolerance test to exclude diabetes. As yet there is no proved virtue in treating the gastrointestinal tract, for many people carry these organisms in this system. The fungi are found on some foods, and therefore a temporary exclusion from the gastrointestinal tract is the most that could be expected. Aci-jel, dispensed in a metal tube like a lubricating jelly, may be applied each night for a period of two to three weeks. (Use of methylrosaniline chloride may produce a chemical burn in an occasional patient.) Good results are to be anticipated, unless the patient has uncontrolled diabetes or unless she continues to receive excessive amounts of estrogens if they are being given. The withdrawal of estrogens will aid in the treatment of a vaginal mycosis.

NOMENCLATURE INTERPRETATION OF INTERNAL URETHROTOMY

To the Editor:—*What constitutes a proper definition of the urologic surgical procedure known as internal urethrotomy? Controversy now centers about the propriety of labeling the procedure in which the contracted female bladder neck is slowly, but nonetheless forcibly, dilated to 45 F. in caliber with the expanding Kollmann dilator as an internal urethrotomy. This procedure is believed by some local urologists to be a superior substitute for transurethral resection of the bladder neck in the female and is certainly not considered by them to constitute simple dilation of the bladder neck, since a dehiscence of the urethra and the bladder neck is to some degree effected. A member of the hospital audit committee states that an internal urethrotomy constitutes an actual cutting operation with a knife or an electrotome, while those who favor using the term to describe the procedure ask the question: How sharp must the knife be, and are not the four blades of the Kollmann dilator in effect separate knives producing a similar result?* *M.D., Texas.*

Answer.—The Kollmann dilator is a flexible urethral dilating instrument, invented a number of years ago. It is not considered to be a urethrotome. This instrument, by its passage, does cause a dehiscence or a breaking down of the fibers of a stricture of the urethra, and the procedure is coded in the Standard Nomenclature of Diseases and Operations as "740-840, Dilation of urethra by passage of sound." In order to differentiate this procedure from other somewhat similar procedures in which other types of sounds are used to dilate a stricture of the urethra, it is suggested that "Kollmann" be incorporated as part of the statement of the operative procedure by including this term within parenthesis. The Standard Nomenclature of Diseases and Operations does not consider the use of a Kollmann dilator as the equivalent of an internal urethrotomy.

ELECTRICAL CHARGE GENERATED BY THE BODY

To the Editor:—*A patient says that she is "charg and actually sparks with electricity. She gets wh is like an electrical sensation that starts in her kn and goes to her feet and sometimes up to her neck This has been a real problem to her in that she ca- not go to the movies because the seats feel charged Furthermore, she finds walking difficult; it is on when she walks on the beach without shoes th there is no problem. She has done a lot of experimenting on her own and finds that it makes n difference whether she wears all cotton or a mixtur of cotton, rayon, orlon, etc. Lately, when she ha gone walking, she has wrapped some wire around walking stick, and this has given her more comfort Are there any suggestions for the care of such patient?* *Martin Karr, M.D., San Mateo, Calif.*

Answer.—It is doubtful whether a properly placed ammeter would reveal any significant difference in th electrical charge generated by different human bodies Depending on variations in temperature and humidity most persons suffer from shocks and see sparks whe touching an automobile door or upon removing nylo pajamas. Just as one person tolerates pain less stoically than another, it is likely that this patient has a lowere tolerance to electrical shocks. Tranquilizers might rais this threshold. From the physical side, cotton clo may not be the entire answer, but they would contribute more to the patient's comfort than would nylo or similar fabrics. All-leather shoes, that is, those without any rubber or plastic in them, should be beneficial

FERRIC CHLORIDE TEST ON URINE

To the Editor:—*Recently in a case of phenylpyru oligophrenia in a 3-year-old child the ferric chlorid test on the urine was strongly positive, and the sam reaction has also been noticed in cases of leukemi What other medical conditions produce a positi ferric chloride test, and what is the mechanism in volved?*

A. Zaccaria Jr., M.D., Corpus Christi, Texas.

Answer.—The ferric chloride reaction is positive in many conditions. In cases of phenylpyruvic oligophrenia the addition of 5% ferric chloride solution to the urine produces a dark-green color. A similar reaction is seen in cases of thiamine deficiency with excess quantities of pyruvic acid in the urine. A transient blue or green color (Schiff's reaction) is also seen in the presence of alkapton bodies (e. g., homogentisic acid) with 2% ferric chloride solution. Phenol derivatives give an amethyst color with 10% ferric chloride solution. This consultant is not familiar with any such reactions in leukemia. The mechanism involved is presumably the oxidation of the pheno and/or pyruvic acid. The ferric ion acts as the oxidizing agent but, in so doing, is itself reduced (gain of an electron or loss of its positive valence) to the ferrous ion.

One should be specific in speaking of the ferric oride test, for many compounds can be oxidized by s reagent. Gerhardt's test for acetoacetic (diacetic) d in urine is based on the production of a cherry-red or with 10% ferric chloride; a similar color is pro- ced by various interfering substances, such as sali- ates, antipyrines, acetophenetidins, phenols, bicar- nates, acetates, and cyanates. In certain chronic sting diseases melanin in the urine reacts with 10% ric chloride to give a gray precipitate which will n black after exposure to air. This should not be mpared with the precipitation of ferric phosphate ien the ferric chloride is first added, before any lors are produced; the ferric phosphate is soluble dilute acid. The Kelling test for lactic acid in gastric ntents utilizes 10% ferric chloride with the produc- on of a canary-yellow color; the presence of thio- anates will give a more brownish or reddish color. ecently 5% ferric chloride solution has been used detect the presence of aminosalicylic acid (used in erapy of tuberculosis), resulting in a deep reddish- own color; a negative reaction is more significant, nce ketone bodies and salicylates also give a positive action.

REANESTHETIC MEDICATION FOR HILDREN

o THE EDITOR:—*There seems to be a difference of opinion among anesthetists and physicians as to the correct dose of atropine preceding a tonsillectomy in children. What is the correct method for calculating this dose, and how soon should it be administered prior to anesthetization?*

John P. Gifford, M.D., Vero Beach, Fla.

ANSWER.—The atropine should be given from a half-hour to a fraction of one hour prior to the time of induction of anesthesia. The chart, given below, is a rough guide of the patient's atropine requirements. Although many things may cause this dosage schedule to fluctuate, in general, the larger the body mass and the more vigorous the child, the larger should be the dose of atropine. This chart is based on an average weight factor.

Premedication in Infants and Children

Age	Weight, Lb.	Dem- erol, Mg.	Mor- phine Sul- fate, Grains	Atropine, Grains	Scopol- amine, Grains	Nem butal, Grains	Seconal, Grains
p to 2 mo.	7-10		None	1/400-1/300	1/650		
-4 mo.	10-14		None	1/300	1/450	1/12	
-6 mo.	14-16		None	1/300	1/450	1/12-1/8	1/4
-12 mo.	16-22		None	1/300	1/450	1/8	1/4-3/8
2-18 mo. ...	22-25	12.5	None	1/250	1/400	1/8-1/4	3/8-1/2
8-24 mo. ...	25-27	20	1/72	1/250	1/400	1/4	3/8-1/2
2-3 yr.	27-30	20-25	1/48	1/200	1/300	1/4-1/2	3/8-3/4
3-5 yr.	30-40	25-30	1/48	1/200	1/300	1/2	3/4
5-8 yr.	40-55	30-40	1/36	1/150	1/150	1/2	3/4-1
8-10 yr.	55-65	40-45	1/24	1/150	1/150	1/2-3/4	3/4-1
10-12 yr.	65-80	45-50	1/18	1/150	1/150	3/4-1	1
12-14 yr.	80-90	50-60	1/12	1/100	1/150	1-11/2	3/4-11/2
Adult	Over 90	50-100	1/8-1/4	1/75	1/150 1/100	11/2	11/2

INHERITED GENETIC DEFECT

To THE EDITOR:—*A 25-year-old married woman has congenital deformities of the hands and feet. These consist of short fourth and fifth metacarpal and metatarsal bones. These bones are 50% shorter than similar bones of the first three digits. The maternal grandfather, two maternal uncles, and the mother have similar defects. There is no history of any familial disorder in the husband's family. The patient is afraid to have children. She fears that her children may be born with even worse abnormalities. Her deformities are more marked than those of her mother or grandfather. What reassurance, if any, should the patient be given?*

Arthur M. Rogers, M.D., Charlotte, N. C.

ANSWER.—The skeletal abnormality described in this patient is rather clearly due to the effect of a dominant gene. Accordingly, the trait may be expected to appear in one form or another in half of the patient's children. There may be a considerable degree of variation in the expressivity of these inherited skeletal abnormalities. It is not possible to give the patient a clear prognosis concerning the possible range of manifestation in her children without more detailed information than is supplied in the query. Nevertheless, there is the real possibility that an affected child might show a more severe degree of defect than is present in the mother; there is, on the other hand, an approximately equally real possibility that the child might be less severely affected.

TOXICITY IN PLASTIC MANUFACTURE

To THE EDITOR:—*In a factory for the manufacture of polyester plastic resins, styrene and methyl ethyl keton (MEK) peroxide (60%) are used. The ventilation is poor. Can the fumes of these chemicals be obnoxious to the lungs or the blood?*

Theodor Friedrichs, M.D., Astoria, N. Y.

ANSWER.—Styrene is not regarded as a highly toxic compound. However, both the liquid and its vapor in sufficient concentration are irritants to the eye and respiratory tract. Prolonged exposure to high vapor concentrations is capable of producing systemic effects. The generally considered maximum allowable concentration for an eight-hour working day is thought to be 400 ppm by volume in air, according to the American Standards Association. The concentration 10,000 ppm may be fatal in 30 to 60 minutes because of respiratory tract irritation. Some of the inhibitors which must be used to check polymerization of stored or transported styrene may be toxic or irritating to the skin, but with good personal hygiene and good ventilation styrene can certainly be used without hazard.

Methyl ethyl ketone peroxide (60%) contains approximately 60% of this compound, and the balance is largely dimethyl phthalate. There is little information available about it in the literature because, to date, it has not found wide usage commercially. Its manufacturers state that its acute oral LD_{50} for mice (the dosage which will kill approximately half of the animals) is calculated to be 470 mg. per kilogram. Intraperitoneal toxicity was similarly determined; it apparently varied widely when the chemical was administered over seven successive days, but by this route the highest dose causing no fatalities was 65 mg. per kilogram. No information is available as to its irritant properties on the skin. However, it is known that dimethyl phthalate is poorly absorbed through the skin.

PROGRESSIVE LIPOMATOSIS

To the Editor:—*A patient, 26 years old, has been developing new lipomas at the rate of three to four every six months: they are mainly about the trunk, shoulders, thighs, and calves. Biopsies have been done on these fatty tumors on several occasions. Has any recent advance been made in the treatment of progressive lipomatosis?*

M.D., Pennsylvania.

Answer.—There are several types of lipomatosis, all of them progressive. There is no satisfactory method of treatment, and unless the lipomas become excessively large or undergo malignant change, it is best to leave them alone.

POLYCYSTIC KIDNEY AND AORTIC STENOSIS

To the Editor:—*A 65-year-old man has an aortic stenosis which seems relatively "tight." There is calcification of the valve on x-ray examination. The patient also seems to have a definite mitral regurgitation. He has been in grade 3 cardiac failure over the past year. Several cardiac surgeons have not considered him to be a suitable candidate for aortic commissurotomy. In addition, he has an unusual condition, namely, a huge left polycystic kidney which extends to the pelvic rim and is readily palpable both anteriorly and posteriorly. Competent urologists have ascertained that there is no function in this left kidney but that the right kidney is normal in function and shows no evidence of having a polycystic abnormality. The polycystic kidney at times is moderately painful and at times has bled. Would the removal of the left kidney and the subsequent abolition of its useless circulatory demands conceivably help the patient's heart condition by the shunting of this blood into more useful channels?*

M.D., Washington.

Answer.—The problem posed is that concerning the possible circulatory strain of a large polycystic kidney on a cardiovascular system with marginal reserve. True, a single polycystic kidney is indeed rare, and this consultant is not aware of studies of circulation through such a diseased organ. However, angiograms in such cases have indicated that the blood supply to such a polycystic kidney is indeed markedly diminished, and it is probable that only a very small amount of blood flows through such an organ. For this re it is doubtful that the removal of such an organ w reduce cardiac demands by any appreciable de It would appear that the indications for treatme the polycystic kidney would not be altered in direction of indication for removal but, rather reverse, by the severe cardiac condition whi present.

SODIUM CHLORIDE AS A CONTRACEPTI

To the Editor:—*For years a patient has been sodium chloride, 5-grain tablets, as a contracep with 100% success. She wants to know wheth use is harmful.*

M.D., Califor

Answer.—A jelly containing sodium chloride concentration of 10% or 20% has been found more spermatocidal in an in vitro test than mo the commercial contraceptive jellies or creams. vaginal application of these jellies for seven days no evidence of irritation subjectively or by spec examination according to Gamble (*J. A. M. A.* 1037-1041 [July 11] 1953). A saturated sodium ride solution (about 36%) introduced into the with a cotton wad for contraceptive purposes re in no signs of irritation by speculum examinatio

As the sodium chloride tablet, about whic inquiry is made, cannot produce a more-than-sat solution, the harmlessness of the tablet is sup by the tests cited. Since the saturated solution mild discomfort for some users, a lesser concent is to be preferred for contraceptive use. A half-sa ed solution (about 18%) can readily be prepar adding an equal column of water to saturated s chloride.

The contraceptive effectiveness of sodium ch is supported by the lowered pregnancy rates of of users in India and Pakistan. A 10% sodium ch solution was inserted into the vagina in a sponge, cotton wad, or pad or in a rice-jelly a with a syringe. Pregnancy rates were decrease 65 per 100 couples per year to 24. While this w complete protection, it was approximately the as the rate of 22 found for others in similar group used diaphragm and jelly. Many of the pregn may have resulted from omissions. A salt table contraceptive, therefore, appears noninjurious a least partially protective.

MASS IMMUNIZATIONS

To the Editor:—*Has the American Medical Ass tion adopted a policy concerning mass imm zations?*

Loran C. Grubbs, M.D., Scottsbluff, N

Answer.—It must be assumed that information cerning A. M. A. policy regarding mass immuniza refers to the Association's position concerning administration of poliomyelitis vaccine. The follow tement is the official action of the A. M. A. Board Trustees at its meeting on Dec. 14, 1956: "The M. A. is in favor of encouraging the administration poliomyelitis vaccine to the public, and is in mpathy with the efforts of those who are endeavorg to educate the public in its use. The A. M. A. will nd its efforts through regular medical channels ward the encouragement of such use by the general ıblic."

At no time has there been a specific policy position garding mass immunization. However, each county nd state medical association has been encouraged develop the inoculation program which best suited local situation. In some areas local societies elected use the mass immunization technique, while in hers they preferred that the inoculations take place the physicians' offices.

REATMENT OF IMPOTENCE

O THE EDITOR:—*A patient in his late 40's complains of complete impotence. He states that he was never too strong sexually, i. e., he has had occasional impotence ever since he was a young man. He noticed that this condition really became serious after the age of 40, and it has progressed until now, for the past three years, he has been unable to attain any erection whatsoever. This patient is a rather anxious type, worries a lot, and does sedentary work. His blood pressure is about 180/115 mm. Hg, with no symptoms; except for a mild prostatitis he is in good health. He was sent to an urologist, and prostate massage was done biweekly for three months, but no improvement resulted. The patient states that this condition has resulted in a strain in family relationships. He is going through the male climacteric, but the administration of testosterone has not helped. Is there any cure for impotence? Is the condition temporary or permanent?* *M.D., California.*

ANSWER.—The vast majority of men complaining of mpotence have no physical abnormality. This patient no exception. His history follows the usual pattern, period of relatively normal potency followed by a radual decline. Temporary remissions may occur, but he trend is toward complete impotence. In such intances local treatment either to the prostate or to the rethra has no beneficial effect. Administration of estosterone is equally ineffectual. As a matter of fact, such treatment may actually do harm because it leads the patient along the wrong path toward a solution of his problem. Proper management consists of a complete and frank discussion of the entire problem, during which the patient should be made aware of the emotional aspects of normal libido and potency. If he gets a clear concept of that, he will understand more readily the modus operandi of his premature sexual decline. The futility of both local and hormone treatment should be emphasized. If these measures fail, the patient should be referred to a competent psychiatrist.

RECURRENT, NONSPECIFIC PAROTITIS

TO THE EDITOR:—*A 27-year-old woman for the past several years has had swelling of the parotid and submandibular glands; this condition has occurred four times within the past year, apparently at the time of menses. The patient is afebrile; the upper respiratory passages are normal in appearance; and there is a mild associated depression and some discomfort caused by the "weight" of the glands, especially in swallowing. The glands return to normal size in a few days. What is the name and what is the treatment of such a recurrent mumps-like disease?* *M.D., New York.*

ANSWER.—Recurrent, nonspecific parotitis is the name applied to the condition described. It is known that increased activity of the salivary glands is many times associated with menstruation. Edema of the ducts interfering with the free flow of saliva would cause swelling without pain or fever. One author described a case which subsided during pregnancy but was again active with the resumption of menstruation. The use of one of the drugs given for dehydration in premenstrual edema may be of value. Allergic parotitis must be ruled out in this situation. The saliva is thick and ropy, with plugs which contain many eosinophils. A history of allergy, either individual or familial, can usually be ascertained.

SUBLIMATION OF SEXUAL URGE

TO THE EDITOR:—*What medical means may be employed to suppress the sexual desire? The question has arisen in connection with several patients who have utterly frigid wives but are reluctant to seek extramarital adventures. Is not this conflict, which may have serious consequences, much more frequent than is usually realized?*

Walter Newman, M.D., Springfield, Mass.

ANSWER.—This consultant knows of no authentic reports on medical means to suppress the sexual urge. That many celibates are able to suppress the sex drive is a well-established fact. In the majority of cases, this is accomplished by the process of sublimation, by which is meant the draining off of the libidinal urge into other channels that are emotionally satisfying. Since the sexual drive is primarily emotionally conditioned, it lends itself all the more readily to the process of sublimation. This method of finding an emotionally satisfying substitute is used consciously or unconsciously by many men and women who for one reason or another find it either impossible or undesirable to satisfy the sexual drive in the normal or usual manner.

The inquirer is correct in assuming that the sexual frustration produced in his patients as a result of their wives' frigidity and their own reluctance to seek satisfaction and release in extramarital relationships may lead to serious consequences. However, before focusing attention on what treatment to prescribe for the husbands, it is important to remember that frigidity in women is an abnormal condition for which there is a cause and which frequently can be relieved by appropriate therapy. In a minority of cases, frigidity in women may be due to pelvic pathology or to an endocrine disturbance, usually of a pluriglandular nature. In such instances, the nature of the pathological state or the disturbed function will indicate the type of therapy that is needed. However, in the majority of cases of frigidity in women, the cause is psychogenic in origin; hence, psychotherapy is indicated. If the patient should respond to this therapy, obviously the husband's problem will be solved. If, however, the woman should not respond or refuses to submit to psychotherapy, then the husband should be instructed how to sublimate his sexual drives.

ARCUS SENILIS IN YOUNG PERSONS

To the Editor:—*What is the present opinion regarding the prognostic significance of arcus senilis when observed in young men or women? Is there a proved relationship between this condition and premature aging or arteriosclerosis or even hypercholesteremia?* *M.D., Illinois.*

Answer.—It is generally agreed that the substance responsible for the appearance of an arcus senilis is cholesterol. In the elderly this is a degenerative process probably secondary to the obliteration of limbal vessels. However, it has been produced experimentally in animals fed a diet rich in cholesterol. It has also been reported frequently in young adults with familial xanthomatosis and hypercholesteremia. A monocular variety may occur after local injury to the eye. Although the bilateral appearance of an arcus in a young adult is not pathognomonic of premature aging, it es indicate the necessity for investigating the lipid etabolism and blood cholesterol of the patient.

HYPERTRICHOSIS

To the Editor:—*A patient, 18 years old, 5 ft. 9 in. (175 cm.) in height and weighing 150 lb. (68 kg.), complains of an excessive growth of dark hair, which is increasing in amount on face and body, particularly the chest and back. She recently lost 20 lb. (9 kg.) by dieting, but her chemical findings, pelvis, and general physical condition are normal. There has been no voice change or the development of other male characteristics. The patient has had electrolysis used on her face but has made no headway with this treatment. How should one proceed to treat this case, and what is the prognosis?* *M.D., Ohio.*

Answer.—It should be recognized that there is a great variation in the normal hair growth in women. Hypertrichosis is often familial, and rarely is there a sign of a pathological condition. All evidence indicates that hair growth is controlled by the endocrine glands, such as the gonads, thyroid, anterior pituitary, and adrenal cortex. Hirsutism has been known to oc after such diseases as mumps, encephalitis, neur and multiple sclerosis. Certain drugs, such as Dilar and testosterone, may also produce transient hirs ism. It is presumed that none of the latter were ca ative factors in this case, and it is presumed also th the patient, like the great majority of women afflict with superfluous hair, has no demonstrable hormo affliction. If that is so, there is nothing to be done b to treat the condition with electrolysis or diatherm if the thickness of the hairs warrants it.

TREATMENT OF ICHTHYOSIS

To the Editor:—*Is any information available relati to the treatment of ichthyosis? Have any of th corticosteroids or injections of histamine been us and evaluated in the treatment of this disease?* *W. F. Darkes, M.D., Orwigsburg, Pa.*

Answer.—The treatment of ichthyosis is still unsati factory; it consists of palliative measures, such as fre quent application of lubricants, use of nonirritatin soaps or soap substitutes and of bath-water softener avoidance of rough clothing and undue exposure t cold weather, and maintenance of a proper degree o humidity in the home. No reports of the use of cort costeroids or histamines for ichthyosis are known, an there would seem to be no rationale for their use.

DECREASED CLOTTING TIME

To the Editor:—*A 40-year-old man with rather hea responsibilities is being treated for hypertensi with reserpine, 0.25 mg. twice daily, and his con tion is adequately controlled thereby. He has rather short clotting time, less than a minute (L White method). What significance, if any, can attached to this clotting time? Does it indic stress? Does it raise the probability of serious v cular pathology, either causatively or as an indi tor?* *Alfred B. Mason, M.D., Concord, Calif*

Answer.—It is most unlikely that either essent hypertension per se, the administration of reserpi or "stress" might produce the extreme shortening the coagulation time described. The incidence vascular thromboses has not been increased, but pe haps reduced, in hypertensive subjects treated wi reserpine.

The clotting time of blood may be decidedly i fluenced by technical factors. If the validity of th accelerated coagulation reaction noted has been e tablished by carefully controlled studies, the pos bility of the presence of a thrombosing process o tendency must be considered. The use of anticoagulant therapy may be justified in some such circumstances the decision in this regard being influenced by the clinical, as well as the laboratory, features of the individual case.

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Influenza Vaccine Allocation Plan

Immunization Limitations Under Medicare Program

Air Force Medical Consultants Complete Tour

Report on Dangers From Radiation

ALLOCATION PLAN FOR INFLUENZA VACCINE

The government has worked out a voluntary allocation program, similar to the one for the Salk poliomyelitis vaccine, for the equitable distribution of Asian influenza vaccine this fall and winter. Backing up a recommendation of the State and Territorial Health Officers, the Public Health Service announced that the six manufacturers of the vaccine had accepted the allocation proposal and are shipping vaccine in conformity with it.

Each state has been given a percentage figure based on the relationship of its population to the total population. On the important question of allocation to priority groups, the PHS again fell back on the health officers, who several weeks previously had proposed that states and communities establish advisory committees to recommend those who could get the vaccine first.

It has been suggested that first inoculations be given key personnel needed to provide medical care and to maintain other essential services. The allocation and priority plans also have been indorsed by the American Medical Association.

In explaining the PHS position, PHS Deputy Surgeon General Palmer Dearing declared: "Any one part of the nation is as vulnerable as another to a possible influenza epidemic. A program giving each state and territory its fair share of the vaccine seems to be the most equitable way of distributing the vaccine geographically throughout the country. As soon as supplies of the vaccine begin to catch up with demand, the allocation system may no longer be necessary."

Manufacturers report weekly to the PHS the total amount of vaccine released for sale that week and, on a state-by-state basis, the amount shipped to public agencies and to other purchasers.

The PHS will maintain the data from the states and will recommend modifications in allocations if its appears that supplies are exceeding demand in some states. The voluntary program does not apply to vaccine already shipped to fill military and civilian orders, but will apply to future civilian shipments, including any federal purchases for nonmilitary personnel.

The same day it announced the allocation program (Sept. 5) the PHS disclosed the release of 1,028,295 cc. of the vaccine, all for civilian use. It was being allocated according to the agreed upon percentages.

The PHS estimated that the release brought the *total since Aug. 12, when the Asian influenza vaccine* first became available, to 3,705,770 cc. The newest release included 300,030 cc. from Lederle Laboratories, 342,765 cc. from National Drug Company, and 385,500 cc. produced by Merck Sharp & Dohme.

INFLUENZA IMMUNIZATION UNDER DEPENDENT MEDICAL CARE PROGRAM

Under the military dependent medical care program (Medicare) Asian influenza vaccine will be administered at government expense only in military facilities.

In outlining the procedure, the Army, which is in charge of Medicare, laid down these rules:

1. Except in military facilities, patients will not be given influenza vaccinations at government expense.
2. In military facilities, vaccinations will be given at the request of the dependent, after military personnel have been vaccinated.
3. Because the State and Territorial Health Officers do not recommend vaccinations at under 3 months of age, vaccinations will not be approved in maternity cases, although all other maternity expenses are included.

The announcement, by Major Gen. Paul I. Robinson, head of the Army's Office of Dependent Medical Care, says:

"Immunization for this disease is a procedure normally administered on an outpatient basis. Consequently, dependents, including those receiving obstetrical and maternity care, will not be eligible to receive influenza vaccine at Government expense, except as may be provided for in medical facilities of the uniformed services. A recent resolution of the State and Territorial Health Officers indicates that immunization for infants under three (3) months of age is not recommended. Therefore, influenza vaccine for newborn is not authorized at Gov-

(Continued on next page)

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Lown, B., and Levine, S. A.:
Current Concepts in Digitalis Therapy, Boston,
Little, Brown & Company, 1954, p. 23, par. 2.

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ernment expense under paragraph 503d (2) (c) of the Joint Directive incorporated in the contracts for payments of physicians."

RED CROSS ASKS SUPPORT FOR INFLUENZA VACCINE DRIVE

The American Red Cross has asked its 3,700 chapters to give full support to medical and public health authorities in their plans for any influenza epidemic. Red Cross President Alfred M. Gruenther said in a statement that most chapters have in operation programs which he has asked be speeded up and incorporated into community planning to meet the threat of an epidemic. He listed these five ways in which local chapters can cooperate:

1. Through assignment of professional nurses already enrolled by the Red Cross to serve where needed during the emergency.
2. A continuous program of classes in care of the sick and injured, a 14-hour home nursing course for training students in care of the ill at home.
3. The new 40-hour course for volunteer nurses' aides who are trained to help doctors and nurses.
4. The reservoir of persons trained in these courses.
5. Enrollment of other trained Red Cross volunteers to assist with community-wide plans for combating the epidemic.

REPORT ON DANGERS FROM X-RAY EXPOSURE

"All man-made radiation must be regarded as harmful to man from the genetic point of view," according to a group of World Health Organization scientists who have completed a report on the effect of radiation on human heredity.

The study summarizes information on the subject and suggests lines for future research that promise to increase knowledge of the genetic effects of ionizing radiations on man and his decendents. It says in part: "There are strong grounds for believing that most genetic effects are very closely additive so that a small amount of radiation received by a large group of individuals can do an appreciable amount of damage to the population as a whole."

The report makes these points:

1. The genetic hazards of radiation from sources used in medicine, industry, commerce, and experimental science should not be underrated: "Both as an approach to control and as providing basic background information, it is essential that methods be found of recording exposures to individuals and populations, however difficult this may prove. There is reason to believe that radiation exposure can be much reduced; therefore, those in charge of sources of ionizing radiation should always ensure that there is adequate justification for exposing individuals to doses, however small."
2. An attempt should be made to develop efficient shielding of the gonads and, in addition, in every exposure the x-ray beam should, as far as practicable, be directed so that a minimum of radiation reaches the gonads.
3. Manifold precautions will have to be taken if nuclear energy is to be safely exploited, but "only the future can show how far the human race can live up to its responsibilities in this respect."

In a special document dealing with the research, Dr. Pierre Dorolle, WHO's deputy director general, cautions against using very high doses of x-rays in the pelvic region, explaining:

"The radiologist and the general practitioner alike will not fail to appreciate the serious implications of the recent warning of the UN committee, but it is to be hoped that they will be equally alive to other dangers, of which the scope and potentialities have not as yet been adequately assessed. Among such dangers is the hazard of exposing early human embryos to X-radiation. . . . If occupational irradiation does not exceed the accepted permissible weekly dose, there is very little reason to consider it a direct potential hazard to the embryo. The situation is different, however, for some types of medical application of X-rays."

TERCENTENARY OF HARVEY'S DEATH

The 300th anniversary of the death of William Harvey, the English scientist who discovered the principles governing circulation of blood, was marked by special observances at the National Institutes of Health on Sept. 17. Seven speakers delivered papers in a day-long symposium on Harvey and the historical and contemporary aspects of blood circulation. The National Heart Institute and the National Library of Medicine co-sponsored the program.

Speakers were Prof. Charles D. O'Malley, Stanford University; Frederick G. Kilgour, Yale Medical Library; Chauncey D. Leake, Ohio State University; Dr. André Cournand, College of Physicians and Surgeons, Columbia University; Dr. Theodore F. Hilbish, NIH; Dr. John H. Gibbon Jr., Jefferson Medical College; Dr. C. Walton Lillehei, University of Minnesota. An extensixe exhibit devoted to Harvey is on display at the Clinical Center at the NIH in Bethesda.

ADVANCED TRAINEESHIPS FOR NEUROLOGICAL RESEARCH

A new program of advanced traineeships for research scientists in neurological and sensory disorders has been announced by the National Institute of Neurological Diseases and Blindness. The project is designed to encourage advanced training in clinical basic science areas such as neurochemistry, neuropharmacology, neurophysiology, or neuroanatomy.

Individual awards will be made for not less than nine months or more than a year, although awards are renewable and may be continued for three years. Stipends which range from $5,500 to $14,800 a year are determined individually in accordance with each applicant's qualifications and training needs. Applicants must be U. S. citizens or have filed intent to become a citizen. The traineeships may be awarded for any institution in the U. S. or abroad qualified to give the training

Application forms may be obtained from the Chief, Extramural Programs Branch, National Institute of Neurological Diseases and Blindness, Bethesda 14, Md.

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1. Coan, J. P., McAlpine, J. C., and Boone, J. A.: J. South Carolina M. A. 51:417 (Dec.) 1955.

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THE PHYSICIAN'S ROLE IN AIR TRAVEL

Lieut. Col. Frederick S. Spiegel (MC), U. S. Air Force

Physicians must continue to contribute to the safety, efficiency, and comfort of air travel. Three principles help to determine whether a person is fit to fly as a passenger: there must be no interference with the supply of oxygen to his lungs, the mechanical expansion of gases in his body must be unobstructed, and he must not affect adversely the sensibilities, security, and health of his fellow passengers. The frequency of airsickness and ear trouble is 5 to 10 times as great in children under 5 years as in adults. A woman during the ninth month of gestation must present a certificate, signed by her physician, stating that she will not deliver for at least 72 hours. Antiemetics, nasal vasoconstrictors, and oxygen are effective in combating nausea, preventing pain from ears and sinuses during descent, and alleviating true air hunger. Persons who have recently undergone enteric surgery must be considered carefully because of the effects of possible sudden decompression upon gases in the body. Aviation medicine has developed into a specialty, but prospective passengers generally turn to the physician in general practice. He must therefore be prepared to answer his patients' queries.

OVER 25 million revenue-paying passengers traveled on U. S. domestic airlines last year. The trend has been rising steadily, and forecasts reveal an even greater increase in the nber of air travelers in the next few years.

ven today there are legions who have had no exience with flying. These people frequently approach ticket window with ill-concealed trepidation and nb the ramp into the airliner with false gusto and vado. Anxiety is harbored by many, from the todig youngster to the timorous oldster. Since flying a new and mysterious event for them, a certain ount of fear is to be expected. All too frequently, vever, the fear is out of proportion to the situation. e trip becomes a nightmare.

Physicians can do much to allay these fears and rece some of the discomforts associated with flying. e should be of even greater usefulness in the role adviser when queried concerning the safety and visability of traveling by air. Most of the time we nember the basic physiology, vascular dynamics, d respiratory mechanics, and are qualified to give nd medical advice, a word of caution or a hearty ssurance. However, there have been instances in ich, in retrospect we must admit, we are not on too n ground. It is in these instances, I submit, that we ust be better prepared to assist with advice and inion based upon fact, not fancy. Several medical ools are now presenting courses in aviation medine and aviation physiology. These courses were made part of the curriculum as a result of the identification the need for this instruction. Since we are well into e "air age" and since air travel has grown so tremendously, it is incumbent upon all of us to become conversant with the medical and psychological problems associated with this type of transportation.

The guiding principles of the air transport industry are safety, operating efficiency, and passenger comfort. Safety is the first consideration. Many would-be passengers remember the glaring headlines concerning an

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From the Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Colonel Spiegel is now assigned to the Professional rvices Directorate, Office of the Surgeon General, Headquarters, United States Air Force.

airliner crash but are unaware of the millions upon millions of accident-free passenger miles flown each year. The Civil Aeronautics Board through its agency, the Civil Aeronautics Administration, maintains very close control over all airline operations, and, as a result, the safety consciousness of the operators is paramount. Safety takes precedence over all else. Safety devices, procedures, and maneuvers have reached a very high degree of development and perfection, and passengers' fears in this area are groundless.

The next principle is operating efficiency. This is closely allied with safety, in that one of the chief methods of achieving each is through extremely careful selection of airline personnel, both flight and key ground employees. Operating costs can mount disasterously and efficiency be greatly impaired if selection of personnel is haphazard, turn-over rates high, and replacements frequent. Further, both on the ground and in the air, errors are more frequent with individuals who are not physically fit or who are given tasks and responsibilities beyond their capabilities. If prospective passengers were made aware of the very stringent medical and psychological requirements airline personnel must meet and the continuous close supervision they must undergo, they would understand why air transport operations are among the most efficient in industry today.

The third principle of airline operation, passenger comfort, is closely related to revenue production. Passengers subjected to discomforts are unhappy and are poor salesmen for air travel. Also, an uncomfortable or depressed individual is more prone to physical symptoms, e. g., air hunger, airsickness, headache, or vertigo. Potential passengers should be assured of a pleasant and comfortable flight.

The aeronautic engineer, in concert with the aviation physiologist, psychologist, and flight surgeon, has been successful in overcoming many of the features of air travel that formerly caused discomfort for passengers. Pressurization of the aircraft has reduced the incidence of air hunger and headache that result from the decreased partial pressure of oxygen. Airsickness also has been reduced by pressurization, since the higher cruising altitudes are less turbulent. The occurrence of ear and sinus troubles are now unusual in pressurized cabins. With acoustic "sealing" of the passenger compartment, complaints referable to propeller and engine noise have been significantly lowered. Other factors in reducing illness and increasing comfort and security are the development and installation of reclining seats and efficient airborne air conditioning systems. The designing and production of dependable, stable, airworthy passenger aircraft with markedly reduced vibration characteristics is very significant.

The specialty of aviation medicine may be considered to consist of three main disciplines. These are categorized into, first, preventive medicine and public health; second, occupational and industrial medicine; and, third, aviation physiology, aviation psychology, and clinical practice. A survey of conditions and complaints of common occurrence in passenger travel reveals many instances when specific knowled these fields is invaluable. Examples will point requirement.

Physical Fitness to Fly

There are some medical conditions which re caution and the exercising of certain precautio preclude development of unpleasant and some serious complications. Three principles must be uppermost in the physician's mind when determ whether an individual is physically, emotionall mentally fit to fly. First, there can be no interfer with the supply of oxygen to the lungs. Next, med cal expansion of gases must be unobstructed. F one must always consider the effect that the indiv will have on the sensibilities, security, and heal his fellow passengers.

Commercial air carriers cannot maintain a "screening service" or triage, per se. They have successfully utilized their ticket sellers and fligh tendants to scrutinize patrons prior to boarding D ing flight the attendant may request that an be deplaned at the next stop, if such action is dee advisable in his or the other passengers' inter

Today, with the development of large, well-equip and well-staffed medical centers and clinics, many lines operate trunk routes into these areas. As a re a great number of passengers bound for these tions are, in reality, patients en route for diagnos treatment. Air travel is the fastest and, in most stances, the least fatiguing of any means of tion. The referring physician is frequently concerning the feasibility of traveling by air to clinic, and as an authority he must be able to accurate and pertinent advice. He should know example, that permission must be granted by public health officials before any person with a tagious or communicable disease may be trans across state lines. The airlines are wary of acce persons in whom communicable diseases are suspe and some refuse entirely. Suspected pulmonary t culosis is a case in point. There is always extan question of responsibility: if a state refuses to the admission of a passenger with a communicab contagious disease, the carrier may be held financ responsible for his care and return to point of or

Individuals with malodorous conditions, gross figurements, or other unpleasant characteristics w might offend fellow passengers should not be tr ported by public air carrier unless physical isol can be assured. Epileptics are more prone to con sive seizures when hypoxic in aircraft. Diabetic maintenance therapy may be carried only if their sulin and syringe are kept in their hand baggag the passenger cabin with them. Patients with artificial pneumothorax should never be allowed to soon after a refill; only after at least 10 days, and w the mediastinum fixed, should flight be considered

Physicians generally agree that a woman with uncomplicated pregnancy is not "sick," that she is normal individual undergoing a normal physiologic ess. All airlines accept passengers during the nth month of gestation and the majority will trans- those in the eighth month. In order to be accepted ng the ninth month, however, the passenger must ent a certificate, signed by her physician, stating she will not deliver for at least 72 hours. When- there is a question concerning premature labor her complications, a medical certificate is required to enplaning.

fants under 6 weeks of age are usually not trans- ed by commercial carriers unless there are very nuating circumstances. In this case a pediatrician's fication is requested, stating that the infant is thy and physically fit to fly.

ildren are only fair air travelers. The incidence of ckness and ear trouble is greatest in those under ars, 5 to 10 times more frequent than in adults. increased susceptibility to airsickness may be ed to position insecurity and apprehension. Ear omfort is associated with the difficulty in teaching lren to make the necessary oropharyngeal adjust- ts while descending. Wider employment of pres- zed aircraft has greatly reduced the incidence of e disabilities in the young traveler.

Medical Difficulties Encountered in Flying

ie changes in barometric pressure which occur changes in altitude are the basic reasons for ear culty. In the normal ear, equalization of the pres- between the middle ear and the ambient atmos- e occurs automatically upon ascent. During de- t, however, conscious voluntary actions (swallow- yawning) must be undertaken in order to gain maintain pressure equilibrium. This is necessary to the anatomy of the eustachian tube and its er-valve type of proximal orifice. Thus, since ear culty occurs almost entirely during descent, the nes routinely maintain a very gradual rate of ent. It is usually at this time that chewing gum istributed to the passengers, since chewing and llowing periodically opens the valvular pharyngeal of the eustachian tubes. Equalization of pressure he accessory nasal sinuses is basically automatic may be interfered with by such conditions as llen or redundant mucosa or nasal polyps. Upper iratory infections and affections are the chief etio- cal agents of aerotitis media, more recently titled titis media, and of barosinusitis. If individuals have such conditions as an acute respiratory ction, allergic rhinitis, or nasal polyposis must fly, expedient for them to use a nasal vasoconstrictor lecongestant during flight and particularly prior to nt and descent.

irsickness in adults is not a major issue in present- airline operations. However, discomfort and ial emesis are considerably more frequent in fe- es, occurring at approximately five times the rate ountered in males. As in children, this may be ibuted chiefly to anxiety and apprehension. Also, of airsickness itself probably hastens the develop- it and appearance of the characteristic symptom complex. Several effective proprietary medicaments are available which will reduce the awareness of motion and the concomitant discomfort in susceptible individuals. These also will prevent airsickness, in most instances, if taken in advance of flight. The value of reassurance cannot be over-emphasized.

Air hunger is associated with a lessened amount of available oxygen in the ambient atmosphere at higher altitudes, due to the decreased partial pressure of oxygen. True air hunger is physiological. Frequently, however, the diagnosis of air hunger is mistakenly associated with a dyspneic type of respiration which in reality is the result of apprehension or anxiety. The treatment of these two conditions is diametrically opposed. In true air hunger supplementary oxygen, which is always available on commercial airliners, will alleviate the symptoms. In the latter instance carbon dioxide inhalations or simple breath holding will bring prompt relief. Reassurance has a very beneficial and calming effect on both.

Potential passengers recovering from recent coronary thrombotic episodes or those suffering from coronary insufficiency must be carefully evaluated before being advised that they may fly. Whether the aircraft in which they will travel is pressurized must be determined. The same type of careful appraisal must be undertaken in the anemic patient, those patients in impending or recovering from cardiac failure, and those with any type of respiratory embarrassment. It is wise to have the individual notify the carrier in advance of the flight. Also, if he has in his possession a certificate of his fitness to fly, it may preclude his being refused passage at the last minute. One should remember that the commercial air carrier has the final word in determining who will be transported in its aircraft.

Persons who have recently undergone enteric surgery should be considered very carefully, with the fact kept in mind that the expansion of intestinal gases is approximately 50% at 10,000 ft. and 100% at 18,000 ft. The latter figure is of utmost significance in pressurized aircraft, since, with rapid decompression of the cabin due to failure of a window or hatch or malfunction of the pressurization system at high cruising altitudes, a postoperative catastrophe may occur.

Of recent and mounting interest is the problem of sickle cell anemia, which is found principally in Negroes. This hemolytic disorder is present in approximately 5% of the general Negro population. It has been demonstrated that with a mild to moderate circulatory oxygen deficiency, of the degree found in unpressurized flights at altitudes of from 8,000 to 14,000 ft., sickling and hemolysis may occur in those individuals with this trait. Splenic infarction or mesenteric thrombosis are the usual sequelae. Although the incidence of this condition is relatively low, it should not be overlooked. Negro passengers would be well advised to notify the flight attendant if they develop abdominal discomfort or pain. It is not unusual for a commercial airliner to make an emergency stop at an en route airport to place a passenger in the care of a physician.

Comment

The foregoing illustrations point out the manifold interests and responsibilities of the medical profession in regard to air travel. Physicians, in the capacity of both professional advisers and personal confidants, must have a firm foundation upon which to base their considered and valued opinions. As is common to all the medical specialties, certification in aviation medicine follows a long period of concentrated didactic and practical work and training in a highly technical field. Diplomates of this board are daily working intimately with flying personnel and aeronautic engineers—in fact with all those in pursuits related to aviation, civil, commercial, and military. Airline passengers almost never come in contact with the aviation medical specialist, and for good reason: he is concerned with the medical and allied problems of aviation—to make flight safer, more reliable, and more comfortable for more people. Medical practitioners in private practice are the ones to whom prospective passengers turn. The average physician should be more familiar with the answers to the questions and the solutions for the problems his patients pose concerning air travel. Several excellent texts and references on aviation medicine are readily available. Chief among these are Armstrong's "Principles and Practice of Aviation cine," [1] McFarland's "Human Factors in Air portation," [2] "Aviation Medicine Practice" pre by the Bureau of Medicine and Surgery of the ment of the Navy,[3] and the U. S. Air Force's Surgeon's Manual." [4]

Commercial air travel is expanding by leaps bounds. Higher-performance aircraft are being oped rapidly and continuously. Speeds are multipl and thus time and distance ratios are const shrinking. Before long jet-propelled passenger will be commonplace. Engineers are discussing ning, and designing the rocket airliners of tomorr Let us, as physicians, stay ahead of our patients' regarding traveling by air. Let us advance with technology of aviation.

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INTESTINAL POLYPOSIS AND PIGMENTED SPOTS OF LIPS

HEREDITARY PEUTZ-JEGHERS SYNDROME

Lieut. Commander Lloyd C. Rohrs (MC), U. S. N.

Repeated episodes of abdominal pain in persons having melanin spots with a characteristic distribution can, with strong suspicion, denote existent intestinal polyps. Typically the melanin spots are on not only the lips and labial mucous membrane but also the buccal mucosa, occasionally the gingiva and hard palate, and rarely on the tongue. The pigmentation can also occur on the digits, periorally, about the eyes, and more rarely across the bridge of the nose. The condition has been reported in persons from childhood to the sixth decade, but usually appears as a recurrent intussusception in the second decade. It is to be emphasized that the polyps in this syndrome are to be considered premalignant lesions.

The association of pigmented spots of the lips, oral mucosa, and often the face and digits with intestinal polyposis has been recognized with increasing frequency as a distinct entity.[1] Repeated episodes of abdominal pain in persons having melanin spots with this distribution can, with strong suspicion, denote inexistent intestinal polyps, particularly of the small intestine, for at autopsy no patient having this pigmentation without associated polyps has been reported.[2] Complications of gastrointestinal bleeding, anemia, intussusception, and malignancy in this hereditary disorder have been stressed.[1] In view of these features, the following case is presented.

Report of a Case

A 22-year-old man first developed severe, generalized abdominal pain in May, 1954. It was unassociated with other gastrointestinal complaints. No abnormalities were present on

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he initial examination or that performed 12 hours later. One pisode of vomiting occurred during the observation period. fter 12 hours the patient was asymptomatic. X-rays of the pper gastrointestinal area, in June, were "normal." In Decemer, the man was seen again because of nausea, vomiting, and pigastric aching pain. There were epigastric tenderness and igidity in the left lower abdominal quadrant. The white blood ell count was elevated, with 83% polymorphonuclear cells. bservation was continued for 48 hours, by which time the atient had become asymptomatic.

In March, 1955, he experienced the sudden onset of severe periumbilical pain. One hour later vomiting occurred. Abdominal tenderness, without rebound tenderness, and guarding over the upper right rectus muscle were found. Abdominal distention developed. An exploratory laparotomy was performed on March 31. There was hemorrhagic exudate in the abdominal cavity, and a distended loop of jejunum, 18 in. (46 cm.) in length, was seen. An estimated 60 in. (152 cm.) of jejunum was intussuscepted into itself. The entire loop had undergone a clockwise rotation of two and one-half turns. The intussusception began about 36 in. (91 cm.) from the duodenojejunal flexure. The terminal 60 in. of ileum appeared to have some impairment of circulation and was slightly cyanotic.

After reduction of the intussusception and volvulus, the reduced jejunum over the area of strangulation was edematous but appeared to have a good color, as did the ileum. The entire small intestine was palpated, and no other abnormalities of the intestine or its mesentery were noted. The postoperative course was uneventful except for a small wound abscess which developed but healed spontaneously. When x-rays of the upper gastrointestinal area were taken 28 days later, the distal duodenum and many jejunal loops were found to be dilated. Hyperperistalsis existed. A distal jejunal obstruction was diagnosed.

On May 11, a second laparotomy was performed. Numerous adhesions existed throughout the peritoneal cavity. Twelve inches (30 cm.) distal to the duodenojejunal flexure, an intussusception again was seen. There was a mass in the jejunal lumen. Six inches (15 cm.) of jejunum were resected and an end-to-end anastomosis performed. The resected jejunum was 4 in. (10 cm.) in diameter. One inch (2.5 cm.) from the proximal resected margin two polyps were found. There was a pedical measuring 1 cm. in length and 0.5 cm. in diameter. At the end of this there was a bulky mass of multiple polyps measuring 2 in. (5 cm.) in diameter. Three centimeters from the same resected margin another pedicle was found, 1 cm. long and 0.5 cm. in diameter, at the end of which was a group of polyps 4.5 cm. in diameter.

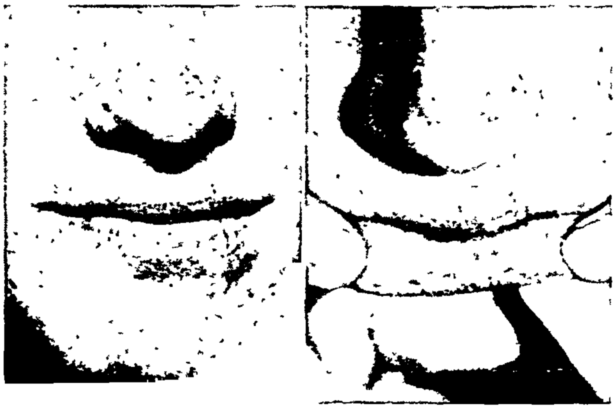
The microscopic sections showed adenomatous polyps with frank malignant degeneration located at their periphery. There was no invasion of the pedicle or muscularis of the intestine. There was a mass within the ileal lumen about 12 in. proximal to the ileocecal junction. Through an enterotomy, a polyp was removed. Microscopically, it was shown to be of the benign adenomatous type. The appendix was also removed. Postoperatively, a pelvic abscess developed which was incised and drained.

Though recovery was slow, no subsequent complications developed. On June 11, a sigmoidoscopic examination revealed three polyps in the colon at 5.5 in. (14 cm.). These were removed and microscopically found to be benign adenomatous polyps. Two air-contrast barium enemas were given in mid-June. A polyp was demonstrated in the proximal ascending colon. A series of x-rays of the upper gastrointestinal area were taken and a fractional study of the small intestine was made late in June. Though the jejunal loops were prominent, there were no intralumenal defects or obstruction.

On Sept. 21, this man was admitted to the U. S. Naval Hospital, Oakland, Calif. He was in good health and asymptomatic. The history, aside from that already given, was noncontributory. From the family history it was learned that the man's father had died "in his early 50's" from "an ulcer." His mother had died in 1947, at the age of 34, from a "tumor in her bowel." The patient did not know if she had had pigmentation of the lips or hands, and no other history was available. There were four other brothers, ages 24, 21, 19, and 17. All were living and well, and, to the best of the patient's knowledge, none had pigmentation on the lips, face, or hands or gastrointestinal complaints.

On physical examination, the patient was found to be a well-proportioned, slender, 6-ft. (182.9-cm.), 148-lb. (67.3-kg.), fair-skinned, blue-eyed individual. His hair was light brown. Over the vermillion border of the lips and extending into the labial mucous membranes there were numerous small (0.5 to 1.5 mm. in diameter), flat, pigmented spots which extended periorally (see figure). There were no pigmented spots on the hands or feet. There was a well-healed, broad, right rectus scar. Aside from these features, the examination was within the limits of normal.

The hemogram, urinalysis, Kahn test, stool examinations for occult blood while on a meat-free diet, and the roentgenogram of the chest showed results that were negative or within normal limits. There was no evidence of anemia. A sigmoidoscopic examination revealed a small polyp at 15 cm. which was removed by coagulation. The existence of a small polyp in the proximal ascending colon was again denoted by the use of a barium air-contrast enema. In the distal portion of the second part of the duodenum, viewed roentgenographically, two large radiolucent areas, thought to represent polyps, were seen. A fractional study of the remainder of the small intestine gave negative results.



Photograph of the lips. *Left*, pigmented spots extend into the immediate perioral region. *Right*, pigmented spots are seen on labial mucous membrane of everted lower lip.

On Oct. 27, a laparotomy was performed. When the duodenum was opened, eight polyps were seen. Two were approximately 1 cm. in diameter on long stalks measuring 2.5 cm. in length; one was sessile, 8 mm. in diameter and 4 mm. elevated. These were excised. Five additional small polyps, 1 to 3 mm. in diameter, were destroyed by electrocoagulation. The entire small intestine was palpated. Six inches (15 cm.) distal to the ligament of Treitz, the previous end-to-end anastomosis site was observed. Fifteen inches (42 cm.) distal, a polyp 2 cm. in diameter on a 5-cm. stalk and a second polyp 3 cm. in diameter on a 1-cm. stalk were found. In the ascending colon, 7.5 cm. distal to the cecum, a polyp 1.5 cm. in diameter on a 4-cm. stalk was noted. All of these were removed. The microscopic sections evidenced benign, adenomatous polyps of the duodenum, jejunum, and large intestine. Aside from a minor wound infection, the postoperative course was uneventful.

The most recent x-rays of the upper gastrointestinal area, fractional small intestine study, and barium enema with air contrast revealed no evidence of polyps.

Comment

This case exemplifies many of the features reported since the entity of intestinal polyposis was recognized by Peutz in 1921 and extensively reviewed by Jeghers and associates in 1949.[2a] The family histories reviewed by the latter revealed the hereditary aspect of this disease, a trait inherited as a Mendelian dominant. Numerous tabulated case reports have verified this fact.[1a] In the case presented, the death of the patient's mother at the age of 34 from "a tumor in her bowel" is suggestive evidence as to the source of the trait.

The dark complexion of most persons having this syndrome has been repeatedly mentioned.[3b] One of the patients reported on by Kitchin had a light complexion.[4] The patient discussed here was blue-eyed and of fair complexion.

The condition has been reported in persons from childhood to the sixth decade but usually appears as a recurrent intussusception in the second decade.[5] This 22-year-old man experienced recurrent attacks of pain culminating in surgical intervention, and an intussusception of the jejunum was discovered. The repeated bouts of abdominal discomfort, due to partial obstruction and intussusception, have been reported as characteristic.[6]

This patient believed that he had always had the small, flat, discrete pigmented spots on his lips. He had not observed their presence over the labial mucous membranes. The extent of pigmentation in this case is limited. Typically, the melanin spots are not only on the lips and labial mucous membranes but also the buccal mucosa, occasionally the gingiva and hard palate, and rarely on the tongue. The pigmented spots also occur on the digits, periorally, about the eyes, and, more rarely, across the bridge of the nose.[2a]

The patient in the case presented had polyps removed from the duodenum, jejunum, ileum, and ascending and sigmoid colon. The two removed from the jejunum showed malignant degeneration; the others were benign adenomatous polyps. Jeghers has pointed out that polyps may extend from the stomach to the rectum but their existence in the small intestine is a constant feature. Though malignant degeneration was observed by him, a recent review of collected cases revealed the incidence to be 15%. It has been emphasized that the polyps in this syndrome are to be considered premalignant lesions. Rectal bleeding and anemia, noted as additional complications,[7] were not present in this patient.

Excluding the drainage of the pelvic abscess, this man had undergone three abdominal operations. Multiple laparotomies in this syndrome are a common feature.[5] In the case reported by Stewart and Storey,[8] a total of nine surgical procedures had been performed. In another, reported by Jeghers, a sprue-like syndrome developed after portions of the small intestine were resected, and inanition and death ensued.[2a]

It is apparent in this case, despite careful and repeated examinations, that either lesions were overlooked or they developed with striking rapidity. The need for careful, frequent, regular, repeated examinations is imperative. At the time this article was accepted for publication, this was believed to be the 49th surgically proved case of intestinal polyposis with pigmentation of the lips.

Summary

A 22-year-old man had polyps of the duodenum, jejunum, ileum, and ascending and sigmoid colon associated with pigmented spots of the lips, labial mucosa and perioral region. The hereditary element was probably present. There were two occurrences of intussusception, and two of the polyps removed were malignant.

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The opinions or assertions contained herein are the private ones of the author and are not to be construed as official o reflecting the views of the Navy or the naval service at

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THE ROLE OF THE PSYCHIATRIST IN REHABILITATION

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Much of the history of psychiatry is concerned with rehabilitation of a sort, for it has labored against tragic odds to restore emotionally crippled people to more adequate modes of life. The disciplines of rehabilitation and psychiatry both maintain that it is incumbent upon the therapeutic team to rehabilitate man as man, no matter how disabled he may be or how seriously restricted are his activities. It is important to treat the patient with the background of his environment in view, as well as in the light of the personal, interpersonal, and social meaning of his illness. Psychological reactions of patients to any type of illness depend largely on the previous personality make-up of the individual. The rehabilitation team, therefore, must be ever alert to any force which might impair motivation for recovery. The real problem of rehabilitation consists in helping the patient realize and accept that the emotional rewards of health are greater than any secondary gains derived from dependency ever can be.

t is indeed a pleasure for a psychiatrist to address audience dedicated to the principles and goals of abilitation. That much of the history of psychiatry olves around efforts at rehabilitation is evident in testimony of generations of psychiatrists who rked against tragic odds to restore emotionally ail- or crippled people to more adequate modes of ng. Those efforts involved only too often the use of y principles and imperfect instruments. But they tributed to the body of knowledge of the human d, the implications of which extend far beyond bounds of psychiatry. The insights of psychiatry of value to the field of rehabilitation, where the atest obstacle to the reablement of the physically ndicapped often resides in the emotions. Emotions d attitudes may be more incapacitating than the l disability, as Osler noted several decades ago en he warned doctors treating tuberculosis that at is in the patient's head is at least as important what is in his chest.

It is self-evident that psychiatry and rehabilitation ve much to teach each other. They deal with two of e greatest adversities that befall mankind—mental or ysical disaster, whether innate or acquired, acute or ronic, temporary or prolonged; and with ways and eans to lighten the burden upon individual and so- ety. They both work in the framework of the thera- utic environment and the therapeutic team and, us, in the context of group dynamics. Most impor- nt of all, they subscribe to the philosophy that what ey are dealing with is not a passive, amorphous be- g to be manipulated willy-nilly, but is an individual ho lives, feels, thinks, struggles, and expends his ergy in defending himself against a threat to his tegrity. Psychiatry and rehabilitation both maintain at it is incumbent upon the entire therapeutic team rehabilitate man as man, no matter how badly dis- led he may be or how seriously restricted in his tivities. I submit that we are striving to return to ciety a "compleat person," skilled and perhaps newly illed in important techniques and especially in the rt of living.

Any physical anomaly, however benign, and whether onstitutional or acquired, can be the source of seri- us disturbances in the life of an individual. A nose, he contour of which offends only the owner, may be s formidable an obstacle to adjustment as a major mputation. The problems of rehabilitation are, there- ore, extensive and extremely complex. They arise in he wake of accidents and crippling diseases and also with acute and chronic illnesses, and, very importantly, with the attrition of years. The rehabilitation of the aging individual is indeed one of the most meaningful fields of modern medicine. So is that rehabilitation which involves disabilities of insidious onset. By the time the disorder is clinically detected, it may have caused great physical depletion and profound psychological changes. The psychiatrist is deeply concerned with all these problems and his orientation is beginning to influence, if not reshape, contemporary medicine itself. Medicine is finding that to fulfill its obligations in a changing epidemiology and a changing culture, it is not enough to apply the insights and techniques of pure science. It is equally important to treat the patient against the background of his environment, and in the light of the personal, interpersonal, and social meaning of the illness. Illness represents a serious threat to the patient as a self-sufficient, intact individual, and hidden forces operating within him may have much to do with its course and outcome. These influences cannot be ignored in any treatment program for any illness or any handicap; they spell the difference between success and failure in our efforts and they are indeed basic materials with which to work.

Rehabilitation is rooted in contemporary medicine and contemporary public health services. It is one with curative and preventive processes and complements

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and completes all of these. Rehabilitation may be as inclusive or as limited in meaning as the concept of the user. It may suggest an effort to make the best of grim adversity, even if this means adjustment at a lower level, or it may suggest a new and better integration. The former is easier to achieve, of course. But is it not our duty to make the goal a more positive one and refuse to settle for less than rendering the disabled individual as complete a person as it is possible for him to be, in a society which has room for people of all kinds and combinations of skill, capacity, and motivation? If this is our goal, we must be cognizant of psychodynamics, of the way in which the human personality is formed, and of the mental mechanisms and the defenses that determine behavior. Such knowledge enables us to work more purposefully in rehabilitation. It is the role of the psychiatrist in rehabilitation not only to treat patients who require his special skills but to serve as a consultant to the rehabilitation team and to clarify those influences which in general and in particular prolong convalescence and, indeed, make this a never ending phenomenon.

Psychological Hazards of Disablement

Unfortunately, there is no blueprint to be followed for dealing with or avoiding the psychological hazards of disablement. Each patient is unique, moulded by his past history, colored by his environment, imbued with goals and values as various as they are complex. But there are certain guides to understanding how and why the individual reacts to stress in a particular way and, if these are utilized early enough and consistently enough, the task of the rehabilitation team can be facilitated.

Let us examine briefly some of the psychological forces operative in physical disability. It was formerly believed that various disabilities brought a fairly consistent pattern of psychological reaction. The tuberculous patient was said to be euphoric; the deaf person inclined to paranoid behavior; the one whose disease was located below the diaphragm vulnerable to depression. It is now recognized that the psychological reactions of patients to any type of illness depend largely on their previous personality make-up. The same is true of reactions to trauma. Some individuals recover quickly; a few develop serious emotional difficulties; and there is a wide range of reactions between both these extremes. The degree of emotional disturbance is by no means directly related to the intensity of the trauma; you have experiences of this kind every day. It is related, however, to the meaning of the trauma to the person concerned. There may well be patterns of defeat in the personalities of patients which delay physical reablement and social readjustment for a long period, and even indefinitely.

Human motivation is a curious process, for it is based on unconscious, as well as conscious, needs. It is therefore not a simple thing to motivate a patient to work toward his own recovery, although certainly an atmosphere of optimism and high morale t therapeutic team helps enormously. The situat complicated, however, by basic human needs: r for love and attention, dependency strivings and s gles against them, feelings of hostility, and feeli guilt. These patterns are found in the developme every individual and difficulties arise when they been imperfectly resolved in the course of matur Sudden physical disaster and, even more insi physical attrition, reactivates conflicts, threats anxieties of long ago. There may well be a retre a more comfortable antecedent state contrived e in life to minimize anxiety and pain. The adverse p chological impact of disablement is in fact gre enhanced when it actually or symbolically recap lates conflicts of childhood. The individual tends revert to immature methods of handling them and rehabilitation problems are compounded.

The rehabilitation team should be alert to th forces which impair motivation. The disabled indiv ual may equate service from others with love a attention previously denied him. He may equate with punishment of those who neglected him in t past. He may equate the helplessness it symbol with retribution for his own hostility and guilt. J as the victim of sudden disablement must work thro the inevitable depression he feels, so he must w through his dependency needs before he can go on better things. In some instances a certain degree dependency will be inescapable; the patient cannot entirely self-sufficient and he must be encouraged accept this. He must also be encouraged, however develop new skills and interests. The real problem rehabilitation consists in helping the patient re and accept that the emotional rewards of fuller fu tion are greater than any secondary gains deri from dependency. Here is the watchword; if you do this, your work is a success, no matter what you accomplish.

Throughout the period of convalescence, depe ency problems will present themselves again again. Even patients who are making excellent p ress will have occasional lapses in that direction questing help or assistance in tasks they have alre mastered. Such patients need support and reassura so that they can go on to learn new tasks. As diffi as the overtly dependent patient, and sometimes m so, is the patient who denies his disability and de his dependency needs entirely. An unrealistic ins ence on independence and self-sufficiency also le to defeat. Underlying it may be a real need for s port and a need to be punished for it. As Menning has noted in this connection, for these patients a p gram of graduated activities within their capabilit is of great importance. This will help shield them fro the mistakes they will make and the humiliation the will suffer if they are allowed to proceed as parago of courage, if not of prudence.

Accepting a Handicap

So it is that the permanently disabled patient must ther surrender to his handicap nor deny that it ex- s. Accepting the disabled self is the decisive step the road to rehabilitation. The difficulties of ac- pting this new self should not be minimized, how- er. There is a body image involved in it that sub- nds the individual's conception of his own person- ty and his relations with others. The image has been ilt up from infancy and it contains many irrational d symbolic associations from infancy and childhood. ese associations linger in the deeper recesses of the nd; they contribute to exaggerated emotional re- tion to injury or loss of parts of the body, to exces- e fear or depression with minor disabilities to imma- re childish behavior that blocks rehabilitation.

Hence, in addition to making an adjustment to rtain real limitations and adaptations imposed by e disability, the patient must work through to a re- sion of his body image, his conception of himself, d his relations to others. This is a process which ay well rekindle old conflicts and painful associa- ons, so that the individual reverts for a time to im- ature patterns of behavior. That it is a natural proc- s and one that should be accepted sympathetically v the rehabilitation worker is self-evident. The prob- m is to work with the more mature aspects of the ersonality to prevent any chance of chronic regres- on and to support the patient through the crisis.

In general, the more immature the individual, the ore pathological his reaction to physical disability. rustrations imposed by it can be inordinately stress- ul, even in the face of excellent remedial and rehabil- ative measures. Particularly in the early stages of isablement, when the extent of the residual handi- ap cannot be estimated, it is important to foster the proper psychological climate. Uncertainty of the out- ome may foster vague but distressing anxiety, and his may continue long after the situation has been larified and after the prognosis has been found to be etter than expected.

Generalized anxiety has a blocking effect on reha- bilitation efforts. This is true whether it comes from he patient's insecurity and uncertainty over his fate, rom the symbolic significance of his condition, or rom unconscious motivations which bring him under he yoke of the secondary gain of symptoms. A chronic disability may weaken personality integration because of the anxiety it constantly evokes. As a result, the patient may confuse functions which are actually impaired with those which are not. The same aspects of disability which interfere with mastery of physical environment may impair social behavior. Impaired locomotion, or an impaired sense organ, may force a change in social relationships. The ensuing frustrations can be reduced by prostheses and the development of new skills. But much depends on the patient's own orientation and his will to keep trying in the face of initial difficulties and failures. Establishing satisfactory relations with other people is of tremendous importance, though it depends on the attitudes and responses of these others, as well as on those of the patient. Here the need of fostering wholesome family attitudes and responses cannot be over-emphasized.

In all treatment situations various emotional reactions are set in motion within the patient and in those who are handling him. These reactions may be psychonoxious instead of psychotherapeutic. When difficulties arise which seem to threaten the progress of the rehabilitation effort, the patient is usually blamed for it. The blame is not always his; it sometimes accrues to the person who is trying to help him. Psychiatrists recognize this development in therapy; they recognize their own contribution to it and allow for it. It need not be viewed as a threat to the therapist or the patient. It simply calls for understanding examination. This is one of the earliest and most useful lessons the young psychiatrist has to learn—the effects of his own attitudes in a given situation. It has been noted many times that patients are aware of the attitudes of the staff, even though these are neither verbalized nor otherwise openly expressed; that patients look for social acceptance and are alert to signs of rejection; that to patients the attitudes of the staff represent a cross section of attitudes of the larger world toward them. Their reactions to staff attitudes are expressed in positive or negative attitudes to the workers in the center. These reactions vary from dependence and affection to hostility and negativism. In these situations again, psychiatry has something to offer through the medium of staff conferences.

Role of Rehabilitation Worker

It is unwise for the rehabilitation worker unskilled in psychiatric techniques to undertake meddlesome psychotherapy in a potentially explosive situation. At such a time expert advice is imperative. We have, in psychiatry, a very troublesome group of problems falling into the classification of traumatic neuroses and having their onset after acute physical or psychic injury. Sometimes there is a considerable lapse of time before the neurotic symptoms appear. In any event, they are usually altogether out of proportion to the severity of the trauma. Elements of secondary gain are readily seen and, depending on predisposition, a psychopathological picture of a specific kind may well appear. An essential principle in the treatment of these cases is prompt institution of psychotherapy, for prognosis worsens with the passage of time. This is particularly so in cases in which compensation may be forthcoming. Laughlin [2] has written some illuminating pages on this problem. He states, in effect, that what the individual craves is not only the material compensation but also the satisfaction of strong, deeply hidden, dependency needs and the abrogation of responsibility. Delayed treatment enables the industrial accident case, for example, to become a chronic problem. Yet, from the outset the patient balks at treatment. What he achieves from a lower level of adjustment seems to be worth far more to him symbolically than the greater financial and personal reward that independence could supply. He is, therefore, loath to accept psychiatric treatment, persists in trying to prove his disability, and is affronted by the idea that psychological factors are contributing to his disability. Even if he agrees to try psychotherapy, his resistances continue. An expert therapist is needed to deal with these resistances and help the patient resolve them. Conflicts must be recognized and faced by the patient despite the anxiety and discomfort temporarily released. Recovery depends on the acceptance of the conflicts, on ensuing processes of desensitization, and on the overcoming of irrational nonrealistic elements.

There are, however, many other situations in which the well-trained rehabilitation worker, skilled in interpersonal relations and abreast of the psychology of disability, can do excellent work. Basic to his effort is a principle laid down in the aforementioned work of Menninger[1] that the disability is not so much what the examiner perceives it to be, as it is what the patient perceives it to be. The rehabilitation worker can discover this dynamic element only by getting to know the patient, by talking to him and listening to his problems, and by determining what the goals and values of the patient have been and whether these must now be altered. The physically disabled person tends to find that some psychological maneuvers, useful in the past, are now no longer so. He may have been satisfied formerly when running up against a difficult situation to beat a reluctant retreat; or he may have found it easy to lower his level of aspiration when certain goals were apparently impossible of attainment. This is not a good philosophy in all matters. Objectives, while they may have to be changed, are nonetheless essential. The handicapped person needs to strive persistently for goals which are attainable if he works hard enough; and he needs to try out many ways of reaching them instead of just one. The rehabilitation worker has a vital role to play during this phase of the program. Not that he should set the patient's goals; but he should help the patient set his own goals, goals within his remaining capacities, and goals which once set should then be accepted and reached. Persistence and variability in approach are essential. So is the cultivation of efficient habits while strong motivation exists.

General principles of learning yield valuable insights and suggestions for rehabilitation. So do techniques and procedures of psychotherapy, which can create favorable conditions for learning new and successful adjustments to disability. It is important at all times to look upon the handicapped person as a normal person with extra difficulties and to ge to see himself in this light. It is a common observ that undesirable trends may assert themselves in personality of the handicapped as a result of medical tags they bear. All branches of med show an unfortunate preoccupation with symp and labeling and with attempts to equate diag and treatment. Menninger has emphasized this pa ularly for psychiatry, but his observation is gen to what we are talking about here:

"To say that a patient has schizophrenia is both scientific and improper; unscientific because we being precise about something that is highly a phous, improper because we are damning the pat with a title that will hurt him forever."[3]

Even in other areas it is certainly true, as Men ger pointed out, that to say a patient has such such a disease often bears no logical relationshi what ails the patient and how he should be trea Labeling of this kind, though it appears scientific necessary, carries with it the danger that we may to treat the disease instead of the patient. Let us forget that the epileptic, the athetoid, the amputee find it difficult to conceive of himself as an epile an athetoid, an amputee and as a human being– the same distorted image.

There is a place for inspiration, too, in the reh tation of the disabled. The patient needs encou ment in his difficult task of regaining lost functio developing new ones. The power of mind over for the relief of symptoms has always been recogn All treatment was once a form of mental thera faith healing. The medicine man, with his extra nary costume, his impressive paraphernalia, an ritualistic behavior, tried to cultivate an atmos of hopefulness for recovery. His successes, and were many, were attested to by awed and gr patients. As for his failures, also many, let us say Haggard[4] that "the dead give no testimonials." point is this, however: that creating a therapeut mate is proper to the art and science of med From the statements of disabled patients, it is that simple and fundamental, unorganized, and naïve psychotherapy often inspires them to search work for a more normal way of life. During the observers noted two influences which, when oper on the personalities of men, were of the greates portance in preventing neuroses and chronic disab These influences were high individual motivation high group morale. Men who were strongly motiv or who were sustained by the morale of the g overcame fears and difficulties quickly, for they let neither themselves nor their colleagues down. S ly a vital aspect of the work of rehabilitation per nel is to promote these influences which not only vate and move patients so profoundly but also rescue them from the dread isolation which se weigh upon them, from the apathy often imposed serious personal loss, and from the hopelessness ich shrouds the future.

Spirit of Rehabilitation Team

submit that inspirational programs are acceptable l necessary. However, to inspire a person to high tivation it is necessary to believe in one's program l to be convinced of the importance of one's task. e team spirit is of great importance; it is born of close collaboration of all members of the team o form a competent, homogeneous unit, and give themselves freely to the common task. Patients are remely sensitive to the spirit of the team, and they adversely affected if that spirit is evanescent. Work progress in mental hospitals demonstrates persua- ely the great importance of interpersonal influences the management of patients.[5] From many points view a rehabilitation center, like a mental hospital, an interacting system in which the activities and at- udes of each participant affect those of all. It has en found that an excellent association between a pa- nt and a physiotherapist may act as a stimulant to otivation when all other methods seem to fail. It s been found that a careless remark by a physician ay throw a patient who has been making good prog- ss into anxiety or depression.[6] Such accidental occur- nces can be highly noxious to the entire rehabilita- on team as well.

High group morale should indeed be the watch- ord of every treatment group. If it is lacking, the habilitation center is in danger of becoming a ware- ouse for expensive gadgets and work-a-day attitudes. morale is high, it will spark the will to live and become proficient in living, no matter what the andicap. The response will be more than rewarding the devoted team of workers who create an atmos- here for recovery. It is the physician who must set ne example for his team and for his patient. The phy- cian is certainly the most powerful force in the re- abilitative process outside of the patient. He is to the atient not only a doctor of medicine, possessed of ast knowledge and great technical skills, but a figure f authority reaching the dimensions of omnipotence. he cast he assumes depends on the patient's depend- ncy needs and his quest for parental figures. The hysician must be alert to this imposed role, for it nay retard the restoration of the patient. He must be ure that the doctor-patient relationship remains on a herapeutic level, in accord with realities of the situa- ion, rather than with magical thinking that so easily asserts itself in the mind of man.

The psychological problems of rehabilitation are so many and so diversified that the psychiatrist cannot and should not arrogate to himself more than a small portion of them. The major job must be done by the rehabilitation team. There are other key groups in the community which can make a contribution in preventive psychiatry; the general physician in his work with families; specialists in their treatment of the patient; nurses who care for the patient in the early days of disaster. What each of these tells and does to the patient can affect his motivation and his future. All such groups need a basic psychiatric orientation to be used on a conscious basis. It has been pointed out, quite correctly, that using this psychiatric orientation haphazardly or unconsciously is much less effective than basing it on a lucid awareness of the psychological forces which usually operate in the newly disabled individual.[7] Although emotional first aid may be necessary and emotional support is required, it is well to remember that the patient usually has within himself the restorative potentialities needed and that naïve interference may complicate the healing process. Further than this, too rapid removal of the emotional symptoms may jeopardize the outcome. All those who deal with disabled patients should understand such basic principles and keep within their area of competency, lest they aggravate the emotional difficulties that invariably arise for a time at least.

The psychiatrist is but one of the team of specialists and auxiliary workers active in the rehabilitation field. Although he must assume important diagnostic and therapeutic functions in the more difficult and complex cases, his role is predominantly advisory and educational. His contribution should grow with advances in his specialty, particularly in the area of social psychiatry as it opens up new possibilities for treatment and prevention. The task imposed upon those of us who are privileged to treat our fellow man is as unending as is the search for wisdom. Every insight we attain reveals the existence of more questions to be answered, more mysteries to be revealed. Reality, including man's own, is inexhaustible. So, too, are the uses of adversity. Let us be prepared to make these our servants, not our masters.

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RESIDUAL DISABILITY OF PHARYNGEAL AREA RESULTING FROM POLIOMYELITIS

CLINICAL MANAGEMENT OF PATIENTS

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Despite the earlier clinical impression of relatively good motor recovery from bulbar poliomyelitis, if the patient has survived,[1] there is a progressive accumulation of patients having clinically significant residual disability in the pharyngeal area following this disease. A group of 33 child and adult patients having poliomyelitic disability of the pharynx has been observed by standardized clinical and roentgenographic procedures and is the subject of additional clinical reports.[2] The motor disabilities of the pharynx of these patients result from a marked variety of particular muscle weaknesses and, also, are variably combined with residual impairments of respiration or of general motor function of trunk and extremities.

The physician responsible for the continued care of these patients having continued disability in the pharynx is concerned with particular handicaps of performance and their relief or amelioration. Accordingly, the following clinically useful classification of impairments of the mouth-pharynx area has been devised.

The most commonly identified poliomyelitis paralysis in the area of the pharynx is that of the constrictor musculature. More and more patients have clinically significant residual disability in the pharyngeal area following this disease. The motor disabilities of the pharynx of these patients result from a marked variety of particular muscle weaknesses. Understanding the motor performance and disabilities in the pharynx depends upon recognition of the role of the tongue-hyoid-larynx column. The optimal time of initiation of efforts of motor rehabilitation is soon after the acute phase, as soon as cooperation of the patient can be achieved.

Classification of Motor Disabilities

Deficiencies of General Motion of the Tongue-Hyoid-Larynx Column.—Understanding of motor performance and disabilities in the pharynx depends upon recognition of the role of the tongue-hyoid-larynx column. In the human, the muscles suspending the pharynx, larynx, and the posterior portion of the tongue converge upon this articulated structure (fig. 1 and 2), whose general motions are essential to usual manner of performance of swallowing, and are normally involved in speech. The valvular mechanisms of the pharynx and larynx are integrally related to the general motions of this column in relation to the cervical spine and posterior skeleton of the face. Thus, the support of the bolus in the swallow-preparatory position within the mouth and its controlled conveyance into the pharynx, the apposition of the palatopharyngeal folds to prevent penetration of the bolus into the epipharynx, the closure of the larynx, and the opening of the hypopharyngeal sphincter are all essentially associated with the general motions of the tongue-hyoid-larynx column accomplished by its suspensory musculature. This vertical motion is greater in the older child and adult than in the infant, in correlation with the descent of the pharynx and related structures, in developmental elongation of the neck. Some clue to deficiency of strength of elevation of the tongue-hyoid-larynx column is provided by observation of the exceptionally depend position of this column and the associated structu of the pharynx in lateral or posteroanterior roentge grams; the latter projection may also demonstrat lateralward displacement of the radiopaque-medi outlined valleculae and floor of the hypopharyn well as a possible angulation of these structures f the transverse plane.[2d] The significance of the gen elevation of this column for the swallowing perfo ance is well demonstrated in circumstances of r tive deficiency of its elevating musculature. A st ard clinical maneuver for evaluation of strengt this elevation is that of clasping the column with examiner's thumb and first finger approximated the notch between hyoid bone and thyroid cartil and exerting traction downward. In subjects hav normal strength of its elevation, the column is ruptly lifted from between the clasping fingers. B in those having weakness of the suspensory muscu ture, the column remains in a relatively depend position. The swallowing effort associated with t impaired elevation fails. This failure may be gener with retention of the bolus in the pharynx and i spill upward through the palatopharyngeal isthm and also into the larynx, or the pattern of swall disability may differentially demonstrate deficien of approximation of the palatopharyngeal folds c failure of opening of the hypopharyngeal sphinct possibly with secondary spill through a persistent patent larynx. The extent and performance adequac of motions of the tongue-hyoid-larynx column in swa lowing can be evaluated by roentgen fluoroscopy. B

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reason of the multiplicity and complexity of these motions, they are more satisfactorily studied by timed film exposures or cinefluorography. Standardization of the subjects' position during roentgenographic studies of motion is important, as the relative extent of motions of these structures upward and anteriorward differs with the subjects' position; there is more anteriorward (ventrad) motion if the subject is in supine rather than in vertical position. In some patients having deficiency of strength of elevation of the tongue-hyoid-larynx column, there is an interesting disproportionate anteriorward motion of this column with the patient in upright position in apparent compensation for the deficiency of its upward motion (fig. 3*a*).

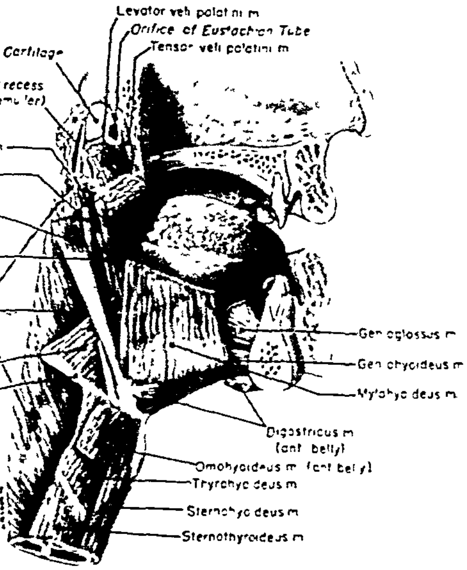

Fig. 1.—Lateral wall of pharynx from lateral aspect. Tubal cartilage and auditory canal are transected. Note suspensory arrangement of styloid, palatal, submental, and digastric muscles.

Impairment of Control of Delivery of Food into the Pharynx.—In the clinical circumstance of deficient support of the tongue and hyoid by its suspensory musculature, the "sizing" and conveyance of bolus to the swallow-preparatory position[3] by a temporally separate maneuver into the mesopharynx may be impaired or accomplished only by unusual adaptive motions of the tongue. In the circumstance of poliomyelitic impairment of the tongue and the irregularly distributed atrophy which is typically associated with it, these swallow-preparatory maneuvers are typically severely impaired.

If there is marked disability of tongue support or of the tongue itself, the patient may engage in a characteristic series of posture adaptations wherein the head is anteflexed during mastication so that the food remains in the anterior portion of the mouth and swallowing is initiated by abrupt upward tilt of the head, decanting the food as an unquantified mass into the pharynx (fig. 4*b*). Characteristically, the patient with deficient control of the oropharyngeal orifice avoids eating in any but the upright position to diminish the risk of premature spill of food into the pharynx. The mechanism and adequacy of motor control of the oropharyngeal orifice are best evaluated by means of lateral roentgenograms of the subject in supine position with bolus in mouth. These are particularly useful in evaluating the defense of the pharynx against premature entry of food from the mouth.

Abnormal Patency of the Palatopharyngeal Isthmus.—Incident to swallowing, the palate demonstrates three consecutive actions: (1) an approximation to the elevated tongue by which the bolus is held in preparatory position (fig. 3*a*), (2) an enclosing action of the palatopharyngeal folds during conveyance of the bolus into mesopharynx, and (3) angulation upward away from the tongue, in correlation with the final elevation of the pharynx, as the bolus penetrates the hypopharyngeal sphincter (fig. 3*b*). Roentgenographic evaluation of prevention of ascent of the bolus in the palatopharyngeal isthmus and potential "nasal regurgitation" must be made during the phase of conveyance of the bolus between the tongue and the combined palate and palatopharyngeal folds into the pharynx (action 2, as noted above). The final position of the palate in swallowing gives little clue to its contribution to containing of the bolus.

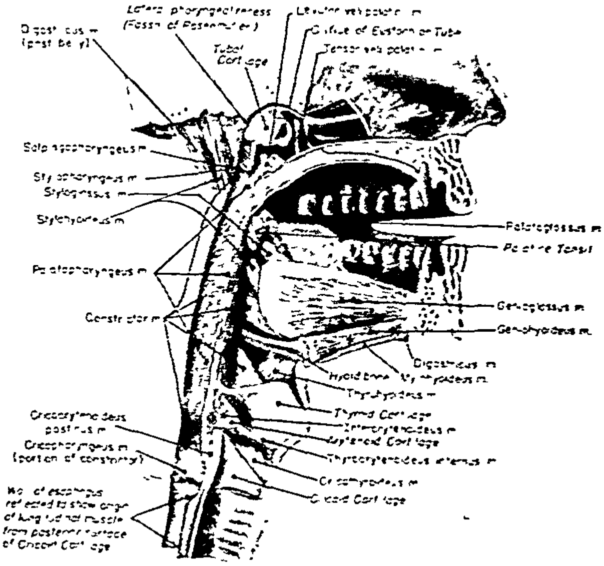

Fig. 2.—Lateral wall of pharynx from medial aspect. Tip of tubal cartilage is excised to show origin of salpingopharyngeus from inferior aspect of cartilage.

There is surprisingly incomplete correlation between visually observed abnormalities of motion of the palate and the palatopharyngeal folds during phonation and their adequacy in preventing penetration of the bolus through the palatopharyngeal isthmus. Thus, a unilateral weakness of the palatopharyngeus may be associated with an adequate function of the palate and palatopharyngeal folds in swallow as result of compensation by the contralateral palatopharyngeus or by the sphincter action of the pharyngeal constrictor muscle.

Obstruction at the Hypopharyngeal Sphincter.—The motor mechanism of the opening of the hypopharyngeal sphincter in the normal subject is not completely understood. It is apparent that, in usual modes of swallowing, elevation of the larynx is essential but elevation of the lateral pharyngeal walls is not essential to this part of the swallowing performance. Upon the basis of roentgenographic observations in patients demonstrating various patterns of postpoliomyelitic disability of the hypopharynx,[2a] it has been inferred that the cricopharyngeus muscle contributes an essential vertical traction upon the sphincter.

An additional sphincteric arrangement in this area is that of the upper rim of circular fibers of the esophagus. In the swallowing action of normal subjects and of those poliomyelitis patients who have no obstruction at the hypopharyngeal sphincter, the sphincter typically opens to its broadest diameter immediately and continually, and there is no clue to a separate mechanism or circumstance of closure by the esophageal musculature. In one of the poliomyelitis patients with continued partial obstruction at the sphincter, there was noted an intrusion into the sphincter area from the posterior wall resembling that described by Brunner.[4] In another, there was a gross exaggeration of the rounded eminence of the cricoid cartilage and associated muscles protruding posteriorward into the hypopharynx and sphincter area.

Fig. 3.—Bolus in hypopharynx and esophagus. Lateral roentgenogram (*a*) of normal swallowing process in adult subject showing opaque bolus in preparatory position. Palate is pressed downward and forward to approximate tongue closing the retro-oral portal. Palate is lifted high (*b*), still in juxtaposition with tongue, which is elevated and extended to posterior pharyngeal wall. Hyoid (at square) is at its maximal displacement upward and ventrally.

In the absence of a consistently identifiable p- lytic disability found in association with persist occlusion of swallowing at the hypopharyngeal sph- ter, a variety of alternative explanations must be c sidered. A possible explanation is that of contract hypertrophy, or fibrosis of the cricopharyngeus adjacent circular esophageal musculature. Strong e dence against this possibility is the normal em stream which these patients typically demonstr Also, extensive dilatation of the sphincter area h not achieved significant relief of swallowing disabil in two of the patients in this study. Kaplan[5] has r ported abrupt relief of total dysphagia, as a seq of poliomyelitis, in one patient immediately after v tical incision of the cricopharyngeus muscle; the prob lems of evaluation of improvement as result of ther peutic procedure in this clinical circumstance hav been discussed elsewhere.[2a]

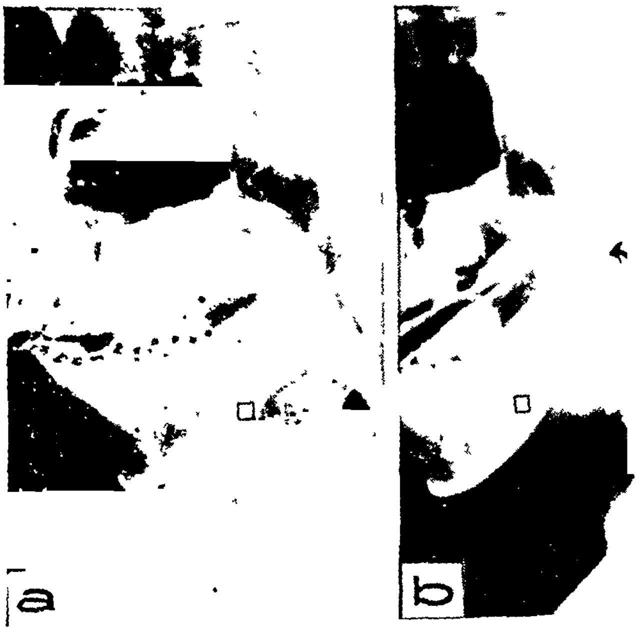

Fig. 4.—Abnormalities in swallowing in 8-year-old boy months after acute poliomyelitis. Lateral view (*a*) of bolus d canted from mouth into pharynx. Marked and irregular dimi tion in mass of tongue is shown by irregular contour (at ser of dots) of inferior border of bolus in mouth. Weakness a diminution of mass of tongue are shown further by irregu lingual border of portion of bolus in mesopharynx. Later st of swallowing (*b*). Mass of medium is retained in pocket atrophy of tongue. Hyoid (at square) is now moved cephal and ventrad, posterior wall of mesopharynx and hypophar is moved ventrad, and hypopharyngeal sphincter is widely op Palate, which at this stage of swallow is normally elevated this patient remains lax and pendant, reflecting weakne levator veli palatini. Incident to constriction of pharynx, t is regurgitation of bolus upward in palatopharyngeal isth (at arrow), despite open hypopharyngeal sphincter.

The varieties of systemic entities associated pote tially with inflammation and fibrosis of the muscul ture in the area of the sphincter, such as scleroderm with involvement of the esophagus,[6] myoporphyria and paroxysmal hemoglobinuria,[8] have been consid ered and differentially excluded in these patients Likewise, the Plummer-Vinson syndrome, more re cently termed "sideropenic dysphagia,"[9] has bee luded. The separate possibility of swallow-inhibi- y influences from the mucosa of the hypopharynx ronically inflamed, in association with stasis of retions, or of inhibitory afferent influences from adjacent esophagus have also been considered, t this disability has persisted in the face of repeti- e and prolonged cocainization of the mucosa in th areas. A further possible explanation of failure opening of the hypopharyngeal sphincter is that coordinative impairment, by which the extraor- narily consistent pattern of sequential activation of e musculature in the pharynx area accomplishing allowing [10] is interrupted as a result of encephalitic sions disseminated within the reticular substance the brain stem.

A coordinative disability of the larynx has been entified incident to studies of speech pathology in ese patients in whom function has been impaired poliomyelitis.[11] In studies to date, it has not been ossible to distinguish objectively the automatic and niform coordination of reflex swallow so that it could e identified in clinical work in comparison with ap- arent valid effects or simulations of swallowing hich the subjects may employ while under study r their disability. A possible other explanation is at of a "functional" disability of swallowing which ay be continued as an anatomically and physiologi- ally inappropriate persistence of an "organic" failure f swallowing. The distinctive affective reaction and djustment of persons long deprived of this important nction is of much significance in their continued isability.[2d]

Abnormal Penetration of the Larynx.—By embryonal erivation and association of coordination, the aryte- oid apparatus controlling the laryngeal aditus is ntegrally related to the musculature of the pharynx. he precise mechanism of relation of the typically ssociated closure of the aditus and opening of the ypopharyngeal sphincter is not yet entirely clear. nfortunately, for purposes of this study, it was diffi- ult to evaluate motion in the arytenoid area roent- enographically, by reason of incomplete calcification f the arytenoid cartilages in the majority of our sub- ects and, also, by reason of superimposition in lateral oentgenograms of the radiopaque medium outlining he lateral pharyngeal recesses. This was particularly he case in those patients in whom the lateral pharyn- geal recesses were paralytically enlarged and expand- ed anteriorward at the sides of the larynx. The lateral roentgenograms did demonstrate obliteration of the laryngeal vestibule late in the pharyngeal stage of swallowing as the bolus was penetrating the hypopharynx and sphincter. In some normal subjects this obliteration was incomplete, and, thus, it was more difficult to specify abnormality in those poliomyelitic patients in whom this final stage of elevation and approximation within the tongue-hyoid-larynx column was paralytically impaired. Penetration of fractions of bolus into and through the larynx typically occurred secondarily as an overflow from the hypopharyngeal pool. In a few patients having persistent occlusion at the sphincter and accumulation of a considerable hypopharyngeal pool incident to demonstration of swallow efforts, the arytenoid apparatus was apparently normally successful in closing the laryngeal aditus.

Weakness of the Constrictor Musculature of the Pharynx.—The most commonly identified poliomyelitic paralysis in the area of the pharynx was that of the constrictor musculature. This varied in degree and pattern of distribution and in associated evidence of performance disability. In the circumstance of asymmetrical weakness, there was a striking traction of the weaker pharynx wall toward the stronger side, which apparently resulted in diminution of the laxity on the paralyzed side, in partial compensation for the weakness. The possible contribution of the constrictor muscle to apposition of the palatopharyngeal folds and its compensatory role in association with unilateral weakness of the palatopharyngeus have been mentioned above. It is apparent that in the circumstance of weakness of the constrictor muscle at this level, abnormal patency of the dorsal portion of the food channel will occur.

Correspondingly, the contribution of the constrictor muscle to closure at the upper rim of the palatopharyngeal isthmus in the modulation of speech is probably critical and, in the circumstance of deficiency of constriction at this level, there may be an abnormal nasality of certain elements of phonation despite visibly and roentgenographically normal motions of the palate in these phonation maneuvers.

Unilateral or bilateral weakness of the constrictor of the hypopharynx results in significant performance disability, for portions of bolus may be trapped in the expanded and dependent lateral pharyngeal recesses. In the circumstance of incomplete swallowing, successive efforts may be required to clear the pharynx. In some patients, it is apparent that this further exertion is an important factor in fatigue limitation of swallowing at mealtimes. Incidentally, there is commonly a persisting hypopharyngeal pool in these subjects, causing a "bubbling" distortion of voice.

Compression of Pharynx by Malposition of Head and Neck.—A distinctive mechanism of pharyngeal disability in patients having extensive cervical segmental impairment in poliomyelitis is that resulting from severe lordosis of the cervical spine and anteflexion at the craniovertebral articulation so that the pharynx is compressed and occluded between the spine and the posterior structures of the face. This mechanism has been studied by Merritt and associates,[2e] who demonstrated that the occlusion of the pharynx could be relieved by traction and external support apparatus applied to the head.

In general, the spatial relations of head and neck are of considerable importance in performance of the partially impaired pharynx. In the position of extension at the head, for instance, the elevation of the tongue-hyoid-larynx column relative to the posterior skeleton of the face may be insufficient and the swallow thus fail, apparently by a mechanism analogous to that of downward traction upon the column by the clasped fingers of the examiner described above as a clinical evaluation maneuver.

Mechanisms of Exaggeration of Disability

The motor disabilities of the pharynx and related structures were found to be the resultant of a variety of factors in addition to specific poliomyelitic weaknesses and contracture and atrophy of the participating musculature. The additional mechanisms which may be superimposed to exaggerate the disability are classified below.

Nutritional Deficiency.—Acute poliomyelitis is commonly prolonged and prostrating, and alimentation is resumed in the face of a considerable nutritional deficiency. The passage of a naso-oral catheter may occasion much distress and resistance on the part of the patient, and adequate nutritional restitution may thus be delayed. Recovery of adequate swallowing occurs at various times in convalescence from severe bulbar poliomyelitis, and a natural tendency of physicians is to delay gavage feeding or performance of gastrostomy in anticipation of this achievement. Meanwhile, the patient's general motor recovery may be progressively retarded by nutritional failure.

Stasis of Secretions.—The normal performance of the pharynx is effective not only in initiation of alimentation and in modulation of respiration but also in facilitation of movement of secretions from middle ear, eustachian tube, and nasal cavity into the pharynx, from whence they are conveyed with the bolus. The "milking" action of the paired levérator muscles upon the eustachian tubes incident to their contraction in elevation of the palate is familiar.[2a] Negus [12] describes an analogous progressive constriction of the palatopharyngeal isthmus facilitating expression downward of the secretions accumulated in the nose and upper pharynx. The most critical and striking area of stasis of secretions is that of the hypopharynx, which, in patients having persistent occlusion of the hypopharyngeal sphincter, is typically the site of a chronic inflammatory reaction. This has been demonstrated by indirect visualization and also by a distinct tenderness in this area as explored by olive-tipped probes.[2d]

Intercurrent and Chronic Infections.—These patients experience a considerable exacerbation of disability at times of acute illness, so that a barely adequate swallow may be temporarily lost, or the larynx may be less capable of defending the tracheobronchial tree from penetrating bolus. By unfortunate coincidence, their acute respiratory illnesses are liable to become complicated and prolonged. Appropriate to the mechanical limitations of mobilizations of secretions, there is a greater liability to local exacerbation of an infective process such as otitis media, mastoiditis, or paranasal sinusitis.

An additional mechanism of sustained infec which must be considered but cannot be separ evaluated is the chronic tracheobronchitis which s of these patients have, with or without contin tracheotomy, in sustaining or aggravating contin infection and inflammatory reaction in areas of t nose, pharynx, and mouth.

Liability to Exaggeration of Disability by Fatigu The mechanical disabilities of swallowing and spe resulting from acute bulbar poliomyelitis often r quire extraordinary exertion for a particular p formance. Also, repetition of the effort is commo required, as in conveyance of bolus through t hypopharyngeal sphincter. The musculature c cerned in this effort is already weakened by pol myelitis. We thus have an accumulation of fact predisposing to accumulation or exaggeration of t disability of swallowing or speech in these subjec It is the factor of fatigue which causes prolongati of mealtimes or, in some subjects, a modified schedu of frequent small and briefer feedings.

Psychological Response to Disability.—The psych logical impact of acute severe bulbar poliomyeliti perpetuated and compounded by continuing disab ties. There may be an exceptional head-neck relat which the subject assumes continually or at ti of eating or of speech in compensation for disabi of the mouth or the pharynx. It may be necessar expectorate secretions frequently, and, in some pa tients having severe associated disability of the tong and lip, there may be frequent and profuse sialorrhe Food is often taken tediously, perhaps with freque expectoration of a portion of the diet. The individual social adaptation may be impeded by distortions o speech, such as marked nasality or associated di ability of articulation.[11] These multiple factors ma accumulate to cause a progressive social withdraw of the patient and restriction to a narrow range o familiar associates. Recovery of performance in th bulbar area may reach an inappropriate plateau the result of reluctance to attempt further achiev ments. This social withdrawal of the individual an lack of further rehabilitation goals at times prove serious handicap to the therapeutic team, to whic a patient may be brought late in this accumulatio of handicapping mechanisms.

General Principles of Rehabilitation

It is apparent that the patient having moderate o severe motor disability in the pharyngeal area following bulbar poliomyelitis presents a unique composit of clinical problems which are often inextricabl intertwined. Evaluation of therapeutic measures applied to particular primary or secondary aspects o disability is difficult. Rather, it is to be recognized that the goal of general improvement of function is the result of multiphasic efforts of medical maintenance and particular specialized therapies. Quite appropriately, varied routines or combinations of therap ve effective in this circumstance. Conversely, thera-utic efforts seemingly appropriate to particular tor impairments are found to be ineffective.

The optimal time of initiation of efforts of motor abilitation is soon after the acute phase, as soon cooperation of the patient can be achieved. Initial orts probably should be directed only to familiar-ation with therapeutic routines and personnel. For purpose of establishing productive relation be-een the therapists and the patient, this relation ould be established early in the recovery period that the usual early increments of achievement n be accomplished in this circumstance of coopera-n.

It should be recognized throughout the therapeutic fort that day-to-day variations in performance are be expected. Recognition of particular circum-ances of exacerbation of disability, such as acute fections or fatigue, will increase understanding of ese variations, but it must be admitted that there e other mechanisms and circumstances of variation hich are not separately identifiable.

Rehabilitation procedures should not impede res-ration and thus cause recapitulation of the respira-ry obstruction and hypoxia which these patients d commonly experienced during their acute illness. or example, if the patient has become dependent pon the easier route of respiration via tracheotomy, e tube should not be abruptly occluded but should covered with an inspiration-access valve or else artially occluded. Correspondingly, the initial efforts f swallowing should be upon a small bolus of liquid aterial with the subject semirecumbent in supine osition, to diminish risk of laryngeal penetration. he bolus in initial trial should be water or isotonic dium chloride solution, even though in many sub-cts it will later be found that a semisolid bolus of elatin, custard, or granular cereal is swallowed with ss difficulty than water.

In the patients having severe disability of swallow-g, the better therapeutic access to the patient is rough his speech. The speech therapist, who is par-icularly oriented to this therapeutic problem, is a aluable member of the rehabilitation group. The arly achievement of usable verbal communication s of much help in social rehabilitation of these pa-ients. In the varied performance of speech, there is vailable a succession of achievable therapeutic goals. pon the basis of comparative roentgenographic stud-es of motions in the tongue-hyoid-larynx column in honation and swallowing, it is, therefore, highly robable that the routines of speech therapy con-ribute to the elements of motor function which are equired for adequate swallowing function. There re also prospective therapeutic effects of speech ther-py upon the motor performance of the larynx, harynx, and mouth in recovery of valving action acilitating normal respiration.

In analogy to rehabilitation in other clinical circumstances of acute neurological impairment, it is advisable that the patient be returned to his family and community when he is psychologically ready for this transition as well as grossly capable of sustaining himself independently by his own motor efforts within it. Incident to this gradation, the therapeutic measures which are indicated and effectual in the individual patient should be continued if the therapeutic relation can be satisfactorily transferred to a family member or other familiar associate. At the time of this transition, it should also be anticipated that, in the more variable environment of the home and community, the circumstances of exposure to intercurrent illness and of psychological distress under extraordinary circumstances of fatigue will all be amplified and the lability of performance thus exaggerated.

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PENICILLINASE IN THE TREATMENT OF PENICILLIN REACTIONS

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Penicillinase, an enzyme that destroys penicillin in vivo as well as in vitro, has been used in the treatment of 42 patients who had reacted unfavorably to penicillin. The most frequent reactions consisted of fever, urticaria, pruritus, and severe arthralgia in hands, ankles, and feet. The penicillinase was usually given intramuscularly in doses of 1 million units in 2 cc. of sterile distilled water. In some cases relief followed dramatically within a few hours; in others the symptoms continued to become more severe for 24 to 48 hours after the injection. Its effects were hard to evaluate because the severity of the penicillin reactions was variable and because some patients with moderately severe symptoms recovered completely within 24 hours after treatment with a placebo. Relief from the pruritus followed promptly after the injection in nearly every case. Two patients who had severe symptoms resembling serum-sickness and did not improve after treatment with steroids and antihistaminics obtained relief promptly after administration of penicillinase. Its only side-effects were local pain and tenderness at the site of injection.

Allergists inform us that today over 300,000 chemicals or substances are in use in treatment of patients by the medical profession. For practical purposes, however, only approximately 1,000 of these are in common usage. Any of these 1,000 substances potentially can cause hypersensitivity or toxic reactions. The variety of these reactions continues to increase until, at this time, the present-day physician must be informed not only of the multitudinous manifestations of the commonly known diseases but also of an ever-increasing chain of undesirable reactions due to drugs themselves. Although almost every issue of some medical publications warns us of an undesirable effect from one of the newer drugs, the most frequent and common reactions continue to be those in response to the two most commonly used drugs, aspirin and penicillin. The frequent urticarias and serum sickness–like reactions due to penicillin continue to harass us and tax our ingenuity in managing these annoying and often serious iatrogenic displays. Penicillin, yearly sales of which in these United States can now be expressed by the tons, is still the most commonly used antibiotic in all specialties of the medical profession. It is becoming rare and unusual to find a service recruit or serviceman who has not been given penicillin. Penicillin reactions have been variously estimated as occurring in from 0.1 to 5% of those receiving the drug. Consequently, penicillin reactions are a definite problem in the service and are a source of considerable morbidity.

Urticarial reactions and serum sickness–like reactions comprise the most commonly seen types of penicillin sensitivity response. Since the use of potent antimicrobial agents, the name "serum sickness" has lost its old significance and the process is now usually the result of drug reaction, with penicillin being by far the commonest offender.

Our therapeutic measures to alleviate these reactions have generally been limited to use of antihistamines, salicylates, calcium, epinephrine, and other sympathomimetic drugs, with the steroids being reserved for the more serious, prolonged, or severe manifestations of the disease. There is no known manner of predicting which of these reactions will clear promptly and which will progress on to tax our therapeutic armamentarium.

In 1956, in the *New England Journal of Medicine*, Becker[1] of Madison, Wis., reported that a single intramuscular injection of 100,000 to 800,000 units of penicillinase would reduce the circulating penicillin blood levels in human subjects receiving penicillin to zero within one hour; for periods of four to seven days later no penicillin could be detected in the blood, despite the fact that injections of penicillin were continued twice daily.

Penicillinase was discovered in 1940. It is produced by many strains of bacteria, including micrococci (staphylococci) and Escherichia coli. The enzyme used in this series of cases was derived from cultures of Bacillus cereus and produced by the Schenley Laboratories. The chemical manner of its action is thought to be that the penicillinase hydrolyzes penicillin to penicilloic acid, which is nonantigenic in penicillin sensitivity states. A unit of penicillinase is that amount of enzyme required to inactivate one unit of penicillin within one minute at 25 C at a pH of 7.0.[2]

From the U. S. Naval Hospital, Great Lakes, Ill.

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Present Study

Since the suggestion by Becker that penicillinase might prove useful in the management of penicillin reactions, it has been used principally and often solely at the U. S. Naval Hospital, Great Lakes, Ill., for these reactions. Certainly, the theory behind its use is plausible and based upon the sound therapeutic dictum: "Where the allergen is known, the first and most plausible measure is to destroy or remove it." To date, penicillinase has been used in 32 cases. If there was any question as to whether penicillin was the causative allergen or if the patient's signs and symptoms seemed too minimal to draw any conclusions from the treatment, penicillinase was not used in his treatment.

Two principal types of reactions were observed, namely, urticaria with generalized pruritus and serum-sickness reaction. No anaphylactic reactions were seen. One case of hemorrhagic eruption confined to the legs and arms is included. The types of reactions treated were (*a*) fever, generalized urticaria with marked pruritus, severe arthralgia with redness, tenderness, swelling, and pain chiefly in the hands, ankles, and feet, 13 (of these 13, 3 had severe sore throat and one had a swollen, sensitive tongue); (*b*) generalized urticaria, general malaise, and joint manifestations without fever, 11; (*c*) urticaria and general pruritus without joint manifestations, 7; and (*d*) hemorrhagic eruption (arms and legs), one.

Of the 32 reactions treated, 14 were due to procaine penicillin and 18 were due to benzathine penicillin. No significant difference was observed in the severity of reaction characterizing either type.

Penicillinase was the sole agent of treatment in 12 cases. In the remaining 20 cases, the following drugs had been used prior to patients' treatment at the Great Lakes Naval Hospital: epinephrine, tripelennamine (Pyribenzamine), diphenhydramine (Benadryl), ephedrine, steroids, and/or chlorpheniramine (Chlor-Trimeton). The antihistamines were usually continued, but all other medicaments except penicillinase and the antihistamines were discontinued. The 20 patients had had previous treatment as follows: antihistamines, aspirin, and steroids, 2; salicylates, epinephrine, and antihistamines 4; and antihistamines alone, 14.

The results of treatment with penicillinase were impressive and encouraging. The reactions to benzathine penicillin responded on the average as quickly as those to procaine penicillin. These results can be summarized as follows: ambulatory and asymptomatic within 24 hours, 15 patients; ambulatory and asymptomatic within 48 hours, 5; and symptoms and signs abating, but four to six days before all signs and symptoms disappeared, 12.

It is our impression that this treatment has rendered the patient more rapidly asymptomatic and free from relapse than other commonly used modes of treatment. When compared with the results obtained in treating 14 hospitalized patients prior to the use of penicillinase, these results were striking. The usual dose administered was 1 million units in 2 cc. of sterile distilled water, intramuscularly. In eight cases, the single dose was sufficient to effect apparent cure. One patient received the injection intravenously by mistake. It is of interest that, in his case, urticaria disappeared within six hours and he had no further complaints. A second patient received 500,000 units of penicillinase intravenously, and, within 45 minutes, she developed a severe shaking chill with high temperature, nausea, and slight cyanosis. She responded promptly to therapy with epinephrine and corticotropin given intravenously. A single intramuscular injection of 2 million units was used in six cases, and relief was obtained within 24 hours in four of these cases. In those instances of severe reactions wherein response was not definitely beneficial within 48 hours, injections were repeated in 48 hours. In 11 cases, more than two injections were given, and in 5 of these we were experimenting with smaller doses given at more frequent intervals. In one patient with severe serum sickness response was apparent after a single injection of 1 million units of penicillinase, in that complete clearing was noted in four days. One week later, he again developed severe joint manifestations with urticaria. After three days' treatment with antihistamines and epinephrine, he was hospitalized and given penicillinase again, with complete clearing after four days.

No toxic manifestations were encountered in the intramuscular use of penicillinase, although most patients complained of local pain and residual tenderness at the site of injection. The area frequently remained painful for 24 hours.

Penicillin blood level prior to penicillinase therapy was demonstrable in only three cases. After penicillinase therapy no penicillin level could be found in these cases. In one case a significant penicillinase blood level was still present 14 days after his treatment with one injection of 1 million units of penicillinase. It is the current belief of the Navy Medical Research Unit 4, who performed these determinations, that penicillin levels in the urine can be demonstrated more readily than in the blood. We are currently investigating this.

Since use of penicillinase, no necessity to use steroids has arisen, in spite of the fact that many of the patients treated had severe manifestations of serum sickness. Three of these had severe sore throats and one, swelling of lips and tongue. Two of the group, who had been started on therapy with steroids plus antihistamines without significant benefit, were taken off steroid therapy and given penicillinase, with prompt improvement and relief in each case, without recurrence.

Comment

Accurate determination of the effect of any agent *in the treatment* of penicillin reactions is difficult. The severity of the reactions is so variable that sound conclusions as to the influence of any treatment must await critical analysis and prolonged usage. We were particularly impressed by this difficulty in determining the effects of therapy, as opposed to the fluctuations of the disease, when four of our moderately severe serum-sickness reactions cleared within 24 hours after placebo treatment alone and four others within 48 hours. A number of patients with minimal to moderate urticaria were simply observed, and the reaction cleared promptly without treatment. Heat and exercise definitely tend to aggravate a reaction; hence, the simple expedient of reducing activity is often rewarded with relief. Dermographia was prominent and present in each reaction observed. The presence of erythema, tenderness, angioneurotic edema, and urticaria, particularly over the pressure points in the palms and under leggings and shoes, was striking.

It is our impression that penicillinase is therapeutically effective. Penicillinase is not a panacea for all penicillin reactions. On occasions, it appeared to effect relief dramatically within a few hours. On other occasions, the chain of hypersensitivity reactions grew more severe for periods of 24 to 48 hours after use of penicillinase alone or combined with antihistamines. We have been impressed, however, that its use, when combined with antihistamines, lessens morbidity and decreases patient discomfort; the likelihood of recurrence is reduced and the need for steroids is virtually eliminated. It is definitely safe when used intramuscularly. We are further impressed by the prompt relief of itching which was noted in nearly every case in which penicillinase was used. Although treatment was not elected in those patients seen early, when the manifestations of reaction were minimal, probably the use of penicillinase as soon as the diagnosis is apparent would result in the best and most prompt response.

It is our opinion that antihistamines and penicillinase are complementary and that combined use reduces the morbidity of this relatively common iatrogenic disease. The advantages of such safe treatment in recalcitrant cases wherein steroid therapy may be hazardous or contraindicated, as in diabetics, patients with hypertension, and cardiacs, are self-evident. As one might expect, once a definitely severe inflammatory reaction has developed associated with severe joint manifestations, even though the circulating allergen has been effectively removed or detoxified, some further time must elapse to allow complete regression. This may account for the longer time intervals in complete healing in certain cases and indicates a need for institution of therapy as promptly as possible.

Summary

The use of penicillinase in the treatment of hypersensitivity reactions to penicillin is based on the logical knowledge that circulating penicillinase reduces all demonstrable penicillin blood levels to zero for prolonged periods of time, thus rendering the penicillin nonallergenic. When used in 32 cases of moderate to severe hypersensitivity reactions to penicillin, the results of treatment with penicillinase were definitely encouraging and apparently superior to measures previously in standard use.

Addendum

Since the preparation of this report, 10 additional patients with penicillin reaction have been treated, each with a single intramuscular injection of 1 million units of penicillinase. One of these patients required hospitalization and a total of five days of observation after treatment. The remaining nine did not require hospitalization; eight were well in 48 hours and one in 72 hours.

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Asthma in Young Boys.—Many people who are called upon to deal with asthma patients in this intermediate stage of their lives [6-16 years] are inclined to overtreat them. . . . This is not necessary. It is to be remembered, that reassurance of the young patient is vital. It is important that the doctor should try and make himself available to the young patient whenever required, for if he knows that the doctor will always come to his aid, it will greatly increase his confidence and that of his parents. An anxious parent may, by his or her behaviour, be the trigger mechanism which sets off the attack. The third point is, that it is important that not too much emphysema should develop before breathing exercises and postural exercises are instituted. Under these methods the children appear, literally, to grow out of their ailment of their own accord. If on the other hand the child be left to "grow out of it" by himself, and only symptomatic treatment is given, then a most unhappy state of affairs may eventuate for both patient and parent, causing them endless anxiety and suffering.—M. Helman, M.B., Ch.B., Asthma in Young Boys, *South African Medical Journal*, Oct. 13, 1956.

PROLONGED TREATMENT OF RHEUMATOID ARTHRITIS WITH PREDNISONE (METICORTEN)

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Evaluation of treatment of rheumatoid arthritis with prednisone for more than a year leaves little doubt that prednisone and the related steroid, prednisolone, are steroids superior to cortisone, hydrocortisone, and corticotropin. Three important advantages of prednisone have become established, namely, a lack of sodium retention, the absence of increased potassium excretion, and the unlikelihood of the production of hypertension during its use. The incidence of duodenal ulcer was found to be no greater than that encountered in the normal population. Thorn tests were done in a large group to determine possible depression of the adrenal gland. Remission or improvement can sometimes be obtained with prednisone in patients whose treatment with cortisone or hydrocortisone has been unsatisfactory because of undesirable effects or diminution in effect.

The treatment with prednisone for periods of a year more of a group of patients with rheumatoid ar- ritis afforded an opportunity to evaluate the effects prolonged administration of this corticosteroid. series of 33 patients with severe rheumatoid arthritis eated with prednisone was originally reported.[1] nce then, the series has increased to 132 patients. he longest period of treatment at the time of the iginal report was 20 weeks. The information gained om prolonged treatment is presented in this report, id original impressions of the outstanding antirheu- atic and anti-inflammatory properties of prednisone e confirmed.

Material

The 132 patients with rheumatoid arthritis included whose disease was acute. Among those with chronic ases, the disease had existed for 6 to 12 months in 3 patients and for longer than one year in 92. Symp- oms had been present for periods ranging from a few ays to 30 years.

Practically all ages were represented. The youngest atient was 17 years old and the oldest 75 years of ge. The sex ratio was 4:3, as there were 76 female nd 56 male patients.

The following concomitant conditions were present the numbers of patients indicated: diabetes mellitus, ve; active duodenal ulcer, one; inactive duodenal lcer, two; moderately severe hypertension, two; and r-advanced symptomatic ulcerative colitis, one.

Forty patients received prednisone as initial anti- eumatic therapy. Ninety-two patients had previously een treated with steroids, gold, and phenylbutazone, s follows: corticotropin, 8; cortisone or hydrocorti- one, 54; gold, 20; and phenylbutazone, 10. Sometimes ese agents were used in combination. The 54 pa- ients' treatment was unsatisfactory with cortisone or ydrocortisone because of side-effects, toxicity, or iminution in the effect of the steroid. The 20 patients ormerly treated with gold represent a selected group n that all had had toxicity reactions to gold.

The appearance of edema with subsequent congestive heart failure in two patients had caused the withdrawal of cortisone. Hypertension had developed during the administration of cortisone and corticotropin (ACTH) in two patients each. It is possible that some degree of hypertension may have existed prior to steroid therapy. All four of these patients showed relatively marked hypertensive retinopathy.

The criteria of the American Rheumatism Association were used to establish the stage of the disease at the time prednisone administration was begun. No destructive changes were present in 20 patients classified in stage 1. The disease in more than half of the patients, 64, was in stage 2, in 40 patients in stage 3, and in 8 patients in stage 4.

Functional capacity was likewise determined by the criteria of the American Rheumatism Association. The following table coordinates the stage of the disease with patients' functional capacity at the beginning of treatment.

Functional capacity was unimpaired in 14 patients in stages 1 and 2. Eighty-one patients in the first three stages were able to carry on normal activities despite discomfort and limited motion. The remainder of the patients were limited as to activity and unable to work, but were able to care for themselves. No patient was bedridden.

Methods

When prednisone was first used, 60 mg. daily was sometimes administered. A large initial dosage subsequently proved unnecessary in rheumatoid arthritis.

From the Arthritis Clinic, Philadelphia General Hospital (Drs. Cohen, Turner, Kanenson, and Goldman) and the Department of Medicine, Jefferson Medical College (Dr. Cohen).

The plan for dosage that evolved with experience follows: Treatment was commenced with 5 mg. of prednisone every six hours, day and night, for one week. With this regimen, symptomatic relief usually occurred within 12 hours. On rare occasions, it took 24 or even 48 hours for symptoms to be relieved. At the end of the first week of treatment, when the patient had improved, the dosage was reduced to 17.5 mg. daily. Reduction in dosage by decrements of 2.5 mg. weekly was continued as long as no symptoms returned. In this way, a maintenance dosage of 2.5 to 15 mg. daily usually was not exceeded. If symptoms returned as the dosage was diminished, the next higher dose was repeated and a new attempt at reduction followed. The duration of treatment, in general, varied from three months to one year, but some patients were under treatment for 18 months.

TABLE 1.—*Functional Capacity Before Therapy*

	Class				
	1	2	3	4	Total
Stage					
1	6	13	1	0	20
2	8	36	20	0	64
3	0	32	8	0	40
4	0	0	8	0	8
Total	14	81	37	0	132

Results

No patient failed to show some response to prednisone. The response, judged by the American Rheumatism Association classification, was grade 1 improvement, that is, complete remission, in 39 patients (table 2). No signs of joint inflammation remained but irreversible deformities, of course, were unaltered. Among patients in remission, the disease at the start had been in stage 1 in 4 patients, stage 2 in 15 patients, and stage 3 in 20 patients.

Major improvement with minimal residual joint signs (grade 2 improvement) took place in 89 patients. The disease in 8 patients initially was in stage 4, in stage 3 in 19 patients, in stage 2 in 47 patients, and in stage 1 in 15 patients.

The remaining four patients improved to a minor degree (grade 3 improvement), some swelling still being present. However, no extension of rheumatoid activity was occurring to new sites. The disease in these four patients, except one, was in its early stages.

With few exceptions, the degree of improvement noted at the time of evaluation could be maintained. In an insignificant number of patients, prednisone seemed to become less effective as treatment was continued. It had to be kept in mind that the adrenal gland can be depressed by continued high dosage of corticosteroids. This makes it mandatory for the physician to arrive at the dosage that will produce a remission but not an untoward reaction.

While the relief of symptoms occurred in most patients within 12 hours, in some it occurred within 4 to 8 hours. Pain and tenderness around affected joints began to diminish. Stiffness, especially that noted e in the morning, diminished after one or two d In two days also, inflammation about the joints be to disappear. As the range of motion of affected jo increased, the patients were able to do such sir things as reach their heads with their hands and f themselves, which previously had been impossible some of them.

Joint measurements were made and swelling, m cle power, and redness about the joints were stud at each visit. C-reactive protein tests were not p formed, since this test is considered unrelia Eosinophil counts were made on 24 patients. The d in circulating eosinophils four hours after a single c dose of 20 mg. of prednisone ranged from 54 to 10 Erythrocyte sedimentation rates, initially elevated, d creased during therapy in all patients except one.

After proper therapy for congestive heart failu the two patients in whom this complication occurr as a result of cortisone administration fared well wh treated with prednisone. Retention of sodium, ma fested by edema, did not occur with prednisc whereas symptoms of cardiac decompensation we aggravated by cortisone.

Blood Pressure.—The blood pressure level of cli patients was determined at each visit, and record daily for ward patients. As previously reported, mo erately severe hypertension present in two patie prior to treatment showed no alteration. However, blood pressure rose to a hypertensive level dur the administration of prednisone in two other patie Perhaps some degree of hypertension existed prio therapy, but this is not known. Eight patients, pr ously normotensive, had a gradual rise in blood p sure during the first week of therapy. Thereafter, t blood pressure slowly reverted to normal levels. of these patients had grade 2 hypertensive retin angiopathy, indicating earlier burned out hyperte sion. The four patients previously hypertensive duri cortisone or corticotropin treatment became norm tensive when prednisone was substituted.

TABLE 2.—*Grade of Improvement*

	Grade				
	1	2	3	4	Total
Stage					
1	4	15	1	0	20
2	15	47	2	0	64
3	20	19	1	0	40
4	0	8	0	0	8
Total	39	89	4	0	132

Hematopoietic System.—Hemoglobin determinatio and red blood cell counts were performed on all p tients. When anemia was present, hemoglobin leve and red blood cell counts usually rose within a short time after improvement occurred in the joints.

Gastrointestinal Tract.—Three patients with peptic ulcer were treated with prednisone without misha despite activity of the ulcer in one instance. Duodena ulcer was first demonstrated by roentgenographi mination in one patient in 1949. Little change oc- red in the lesion during the following year. Predni- e administered from Aug. 23, 1955, continuously more than a year caused no progression of the er, the last roentgenographic examination having en made on Aug. 27, 1956. The patient remains on rapy with a maintenance dose of 15 mg. of predni- e daily with Aludrox (aluminum hydroxide gel th magnesium hydroxide) between meals. He is nptom-free. Two patients with inactive asympto- tic duodenal ulcer received prednisone. In a male tient with no complaints referable to the gastroin- tinal tract, a chronically scarred duodenal cap had en discovered by gastrointestinal series in 1951. No ange occurred in the scarring, but a gastrointestinal ies after five months' treatment with prednisone owed pylorospasm. This patient is maintained on erapy with 15 mg. of prednisone daily with Aludrox tween meals. He complains occasionally of epigastric stress.

In May, 1951, roentgenographic examination in a oman showed marked deformity of the duodenal lb. Examined again in January and November, 1955, e cloverleaf deformity was concluded to represent arring from chronic ulceration rather than a definite ater. Prednisone was first given on Nov. 23, 1955. is patient's condition can now be maintained with mg. of prednisone daily with Aludrox between eals. She complains only occasionally of epigastric stress. The radiographic examination on Aug. 1, 56, showed no evidence of activity of the ulcer.

A duodenal ulcer in a female patient ruptured sud- nly during therapy. No gastric distress or symptoms ferable to the gastrointestinal tract preceded this isode, so it was a most unexpected occurrence. The pture was closed surgically. Reactivation of the thritis developed. Prednisone was again adminis- red. The maintenance dose is 10 mg., and the patient symptom-free. There has been no recurrence of e ulcer.

A patient with an inactive asymptomatic duodenal cer received prednisone. This fact that an ulcer was esent was unknown to us at the time. The patient mplained of ulcer symptoms on the 25th day of eatment, at which time a gastrointestinal series dis- osed a large ulcer niche.

Mild epigastric distress occurred in another patient uring treatment, but no ulcer could be demonstrated. ar advanced ulcerative colitis in one patient could be ontrolled for six months with a maintenance dosage f 15 mg. of prednisone daily. The patient, however, as lost to subsequent follow-up.

Carbohydrate Metabolism.—Five patients with dia- etes mellitus received prednisone. Three required dditional insulin by as much as 50% for control. The ourth patient required no additional insulin.

The fifth diabetic patient, with severe rheumatoid rthritis, was brought into the hospital in diabetic oma. With little alernative except to chance therapy ith steroids, cortisone was administered. The patient fared well under steroid therapy, which eventually was changed to prednisone. She still is under our care and doing well. The blood sugar level has not been disturbed since standardization was achieved.

Electrolyte Studies.—At the beginning of the study of prednisone, serum sodium and potassium determinations were made routinely. When it was established that they were unnecessary, the studies were discontinued. Serum sodium levels showed no tendency to increase and serum potassium levels showed no decrease below pretreatment levels in patients receiving prednisone for prolonged periods. No patient complained of muscular weakness or lassitude and no supplemental potassium was needed.

Side-actions.—The most prominent side-action accompanying prolonged administration of prednisone was moon facies in 70 of the 132 patients. Acne in one patient, and acne and hirsutism in another, which developed when the patients received cortisone, persisted when prednisone was substituted. No other untoward effects occurred, except those already mentioned in reference to carbohydrate metabolism, blood pressure elevation, and the gastrointestinal tract.

Thorn Tests.—Eosinophil counts were made on the blood of 78 patients after fasting in preparation for the Thorn test. The maintenance dosage in these persons had been 15 mg. of prednisone daily for from 2 to 12 months. Each then received 40 units of corticotropin intramuscularly and was required to return in four hours. The patient partook of neither food nor drink during this period of time. Upon his return to the laboratory, a second eosinophil count was made. If the reduction in eosinophils was less than 50%, the test was considered negative and interpreted to mean that the adrenal cortex was inactive, as the result of prednisone therapy. In this test, 60, or 77% of the 78 patients, showed a positive reaction, indicating no disturbance of adrenocortical function, and 18, or 23%, a negative result, which is interpreted to indicate that there is some depression of the adrenal cortex. In the majority of patients, therefore, no depression of the adrenal gland resulted from the administration of prednisone.

Comment

Evaluation of treatment of rheumatoid arthritis with prednisone for more than a year leaves little doubt that prednisone and the related steroid, prednisolone, are steroids superior to cortisone, hydrocortisone, and corticotropin. Prednisone possesses outstanding antirheumatic and anti-inflammatory properties. Three important advantages of prednisone have become established, namely, a lack of sodium retention, the absence of increased potassium excretion, and the unlikelihood of the production of hypertension during its use. Remission or improvement can sometimes be obtained with prednisone in patients whose treatment with cortisone or hydrocortisone has been unsatisfactory because of undesirable effects or diminution in effect.

Among rheumatoid arthritis patients who can tolerate gold, a large percentage will probably do well under treatment with this substance. This could prove advantageous because therapy with steroids brings about only temporary cessation in the activity of the disease. Conceivably, the combination of gold with one of the newer steroids might achieve more permanent benefit in rheumatoid arthritis.

A possible disadvantage of prednisone is the fact that the majority of patients receiving it sooner or later develop rounding of the face. However, facial rounding was not troublesome in the 70 patients reported here. Despite the reactivation of a duodenal ulcer and the rupture of a symptomless duodenal ulcer, the incidence of peptic ulcer seems to be no greater with prednisone than with the older corticosteroids. The lack of progression of lesions in three patients with active duodenal ulcer or chronically scarred duodenal caps supports this view.

After experience with larger dosages, it seems best to commence treatment with prednisone with a relatively low dosage, 20 mg. daily. The dosage can gradually be reduced as the patient improves. The dose should be increased if the patient complains of stiffness in the joints in the early morning hours before arising, or if soreness or tenderness is present. Our maintenance dosages ranged from 2.5 to 15 mg. daily. Only rarely did the amount have to be increased to 30 mg. daily. When this became necessary, a dosage reduction schedule was repeated.

Summary

One hundred thirty-two patients with rheumatoid arthritis in various stages were treated for three months to a year or more with prednisone, one of the newer adrenocortical steroids. The effects of prolonged administration of this substance were evaluated. Forty patients received prednisone as initial antir matic therapy. In 54 patients, previous treatment w cortisone or hydrocortisone had proved unsatisfac because of toxicity or escape from control. Tw patients were transferred to therapy with predni because of toxicity reactions to gold. Each of the tients showed a favorable response. Complete r mission occurred in 39 patients, in approximately of whom the disease was in stage 3 at the beginnin prednisone therapy. Major improvement occurred 89 patients. In more than half of this group, the dise had been in an advanced stage. Prednisone posses certain advantages over cortisone, hydrocortisone, a corticotropin (ACTH), namely, absence of sodium r tention and of increased potassium excretion, and t unlikelihood of production of hypertension during administration.

Rounding of the face occurred in 70 patients being the most prominent side-action. One pati with an active duodenal ulcer and two with chronic ly scarred duodenal caps were treated without pr gression of their lesions. Activation of a duodenal ulc occurred in one patient, and in another with no sym toms referable to the gastrointestinal tract, a ruptur duodenal ulcer required surgery. Despite th occurrences, and in view of the treatment of th patients with ulcer without mishap, the incidence peptic ulcer during prednisone and prednisol therapy seems not to exceed that encountered w the older adrenocortical steroids.

Prednisone as Meticorten was furnished by George Bab Jr., M.D., Division of Clinical Research, Schering Corporat Bloomfield, N. J.

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Eclampsia in New Zealand.—A Dominion-wide investigation of eclampsia over a period of nearly 30 years, made possible by general notification of eclampsia in New Zealand . . . indicates very striking reductions in incidence, from 3.2 per 1,000 births to 1.02 per 1,000; in maternal mortality rate, from 18.9 per cent to 1.7 per cent; in maternal deaths, from 0.6 per 1,000 total births to 0.03 per 1,000; and in infant mortality rate, from 42 per cent to 13.6 per cent. . . . Reduction in severity is further shown by the fact that in the last 6 years, 1950-1955, 63 per cent of the cases were extremely mild type with survival of both mother and infant and no more than 3 fits, whereas in the first period, 1928-1933, only 16 per cent of the cases were in this category. A very important change in the pattern of eclampsia is the ever-increasing proportion of cases now occurring in the late second stage or early post-partum period where, in the main, they are of very mild type and quickly amenable to control by relatively simple measures. Another remarkable change in the pattern of toxaemia as a whole is the very much greater proportional reduction of eclampsia deaths by comparison with other toxaemia deaths which are of a more purely hypertensive type. In more recent years, even in those cases of eclampsia which did prove fatal, the eclamptic element was completely overshadowed by acute cardiovascular incidents. These facts are surely a complete vindication of the value of antenatal care even in our present state of incomplete knowledge of causation. For without question these results were essentially due to preventive measures carried out with care and conviction by the majority of the doctors throughout the country.—T. F. Corkill, M.D., Eclampsia—Changes in Pattern, *The Journal of Obstetrics and Gynaecology of the British Empire*, February, 1957.

DRY FENESTRA NOVOVALIS OPERATION

TECHNIQUE FOR RESTORATION AND CONSERVATION OF SERVICEABLE HEARING IN CLINICAL OTOSCLEROSIS

Julius Lempert, M.D., New York

The labyrinthitis that has often followed fenestration operations was explained in part by the appearance of blood in the perilymph space but also in part by the use of irrigating solutions which did not duplicate the unknown composition of the perilymph. The irrigation necessary for the removal of bone dust is now done before opening the perilymph space, and the subsequent creation of bone dust can be avoided by removing the bony cupola intact instead of using the pulverization technique. One hundred fenestration operations have been performed alternately with and without irrigation, so that in 50 patients the ear was irrigated and in 50 it was not. Bleeding into or within the perilymph space was prevented in every one. There was labyrinthitis of some degree of severity in each of the 50 irrigated cases, and it was absent in all of the 50 nonirrigated cases. The new vestibular fenestra must be made in a region out of reach of the spreading otosclerotic lesion, for permanency of effect; for acoustical reasons, the fenestra is placed outside of the middle ear. The middle ear space is acoustically sealed off. The new vestibular fenestra being likewise covered and sealed off, and being without any direct connection with the middle ear, a maximum difference in sound pressure between them is attained. This gives the most marked and most lasting possible improvement in hearing.

Otologists everywhere, interested in the improvement and perfection of the fenestration operation, were trying to determine the cause of the inflammatory reaction of the endolymphatic labyrinth, always a postoperative occurrence, varying only in the degree of its severity, as judged by the postfenestration clinical picture. George Shambaugh Jr. suggested, logically, that blood entering the perilymph space during the fenestration operation can cause postoperative serous labyrinthitis of a greater or lesser degree, varying according to the amount of blood entering the perilymph space. He proved, experimentally, in the monkey, that, by permitting quantitatively different amounts of blood to enter the open perilymph space of the fenestra in the external semicircular canal, several varied degrees of postoperative labyrinthitis could be produced. Nevertheless, the question still to be answered was "Will the avoidance of the technical error of permitting blood to enter into or start within the perilymph space prevent the onset of postoperative serous labyrinthitis?"

Careful observation of the sources of origin of free blood in the perilymph space led me to devise techniques for preventing both the bleeding into and the bleeding within this area. In spite of this, however, I was unable to prevent in any of my patients the onset, postoperatively, of the clinical picture suggestive of serous labyrinthitis in various degrees of severity. It thus became obvious to me that, (1) although it is true that bleeding into or within the perilymph space does cause postoperative labyrinthitis, (2) it is also a fact that even the most meticulous avoidance of blood entering into or starting within the perilymph space does not per se prevent postoperative onset of inflammatory reaction involving both the vestibular and the cochlear endolymphatic labyrinth, in varying degrees of severity. These observations caused me to believe that blood within the perilymph space is not the only cause of postoperative labyrinthitis.

Irrigation and Suction as Cause of Labyrinthitis After Fenestration

If, however, the constancy of the postoperative occurrence of serous labyrinthitis is to be explained, there must exist still another, hitherto-unrecognized, technical error, constantly being made in the performance of the fenestration operation, which always causes various degrees of inflammatory reaction of the membranous labyrinth. It occurred to me that irrigation and suction with any one of the physiological solutions used to date, for whatever purpose, after the vestibular perilymph space has been laid open, may be the one technical error always causing postoperative inflammation of the membranous endolymphatic labyrinth despite the meticulous avoidance of all the other technical errors which could cause it. The postoperative inflammatory reaction may be either a chemical phenomenon produced by irrigation or a mechanical one produced by the suction accompanying the irrigation.

From the Lempert Institute of Otology, Lempert Research Foundation, Inc.

Honorary Chairman's address, read before the Section on Laryngology, Otology, and Rhinology at the 106th Annual Meeting of the American Medical Association, New York, June 4, 1957.

Irrigation in the region of the open perilymph space inevitably results in the replacement of the perilymph within the perilymph space with the fluid used for irrigation. The chemical difference of the fluid replacing the human perilymph may cause inflammatory reaction of the membranous endolymphatic labyrinth. Since the chemistry of the human normal perilymph is still unknown, there is no way of telling whether or not any physiological solution presently employed for irrigating the newly created fenestra region can effectively take the place of the natural perilymph which irrigation and suction removes from the perilymph space. It is not known if any of these solutions can be tolerated within the perilymph space for any length of time without causing inflammatory reaction of the delicate membranous endolymphatic labyrinth. None of the physiological solutions heretofore suggested for replacing isotonic sodium chloride solution or Ringer's solution for irrigating the perilymph space seemed to prevent the postoperative onset of inflammatory reaction of the endolymphatic labyrinth in varying degrees of severity, as judged by the duration and severity of the postoperative vertigo and recruitment.

The mechanical effect of the suction force upon the delicate membranous walls of the endolymphatic labyrinth cannot be dismissed without being suspected also as a possible cause of the postoperative inflammatory reaction of the membranous endolymphatic labyrinth.

Based upon the supposition that the effect of the chemical difference between the fluid used for irrigation and that of the human perilymph which has been replaced by it (within the perilymph space), as well as the mechanical effect of the suction force upon the membranous endolymphatic labyrinth, may be responsible for the postoperative inflammatory reaction of the endolymphatic labyrinth, I decided to conduct definitive tests. These tests would determine whether the constantly used irrigation and suction, with subsequent replacement of the perilymph with any of the currently used solutions which are different from perilymph chemically, can assuredly be held responsible for the constancy of postoperative serous labyrinthitis following fenestration surgery. In addition to avoiding the heretofore-proved causes of serous labyrinthitis, I would also have to avoid irrigation and suction altogether after opening the perilymph space, in a series of cases, in order to observe whether or not the postoperative labyrinthitis can thereby be consistently and consecutively prevented.

The tests were carried out on a series of 100 patients. I consecutively fenestrated 100 ears deafened as a result of otosclerosis, in the presence of good hearing by bone conduction, alternating between irrigation and nonirrigation, so that in 50 patients the ear was irrigated, and in 50 it was not. The previously proved causes of postoperative inflammation were carefully prevented. Bleeding into or within the perilymph space was prevented in every one of the 100 patients.

The results appear conclusive. I observed that, in the 50 patients in whom irrigation and suction were not used after the perilymph space had been opened, there was no clinical evidence of postoperative inflammatory reaction of either the vestibular or the cochlear endolymphatic labyrinth. Of the 50 patients in whom irrigation was used, however, all showed postoperative signs of labyrinthitis in various degrees of severity. I have thus proved to my satisfaction that irrigation and suction, after the vestibular perilymph space has been opened, is the constant cause of postoperative inflammatory reaction of endolymphatic labyrinth.

It thus became obvious that the fluid most physiologically suitable for surrounding the membranous labyrinth must be natural perilymph. It is apparent also that the best way to prevent postoperative inflammation of the endolymphatic labyrinth is to permit the labyrinth to continue bathing in Nature's perilymph instead of in any other solution which cannot possibly be made "physiological" to the membranous endolymphatic labyrinth so long as the chemical composition of the human perilymph remains unknown.

However, irrigation and suction after the vestibular perilymph space has been opened can be avoided only by technically performing the fenestration operation without creating the need for irrigation, once the perilymph space of the vestibular labyrinth has been laid open. *The necessity for the use of irrigation after the vestibular perilymph space has been opened can be avoided only by (1) using irrigation prior to opening the perilymph space for the removal of all bone dust and (2) employing* the cupola technique and removing the bony cupola intact instead of using the pulverization technique for opening the perilymph space, thus avoiding the creation of bone dust and removing the necessity for irrigation after the perilymph space has been opened.

Postoperative inflammatory reaction of the vestibular and cochlear membranous endolymphatic labyrinth after the fenestra novovalis operation can now be consistently avoided with the use of the dry fenestra novovalis technique. Since the technique for prevention of postoperative osteogenetic closure of the fenestra novovalis had been previously perfected and time-proved, the technique for prevention of postoperative serous labyrinthitis which has finally been developed results in removal of the final stumbling block to completely successful fenestration surgery.

Requirements of Fenestra Novovalis Technique

Obviously, surgery aimed at improvement of hearing in clinical otosclerosis is now an established and recognized achievement. But to be consecutively, consistently, and abundantly successful in the restoration of serviceable hearing and in the permanent maintenance thereof in an ear deafened by ankylosis of the stapediovestibular joint of otosclerotic origin, the technique employed must meet the following requirements:

1. The over-all procedure must include means for predicting preoperatively the possibility of surgically improving the hearing for airborne sound (by surgically remobilizing the inner ear fluids) to at least the 30-db. level or higher, in the 512, 1,024, and 2,048 frequencies, the speech frequencies. The ability to hear at these levels, which should be evident immediately, on the operating table, is necessary for practical, serviceable, unaided hearing acuity.
2. The surgical technique employed should be capable of improving the hearing in a given ear, no matter how low the preoperative audiometric reading for airborne sound happens to be for the three frequencies, so long as the masked bone-conduction hearing for pure tone in these frequencies has not fallen below the 20-db. level.
3. The technique employed must incorporate definitely prescribed, time-proved means for deliberately conserving and permanently maintaining the hearing newly regained by the operation.
4. To reach the above-mentioned three objectives, it is essential that the basic principle of the technique employed should consist of the surgical creation of a new covered vestibular window outside of the middle ear to replace the functionally impeded covered oval window within the middle ear.
5. It is of functional importance that the new fenestra be placed outside of the middle ear. To prevent the newly created vestibular fenestra from eventually becoming functionally impeded by the progressively spreading otosclerotic tumor, it is essential to create a new vestibular fenestra outside the otosclerotic oval window fossa in a region out of reach, as a rule, by the otosclerotic lesion.
6. Functional permanency is of importance in the new fenestra. A newly created vestibular fenestra cannot be left uncovered without jeopardizing not only the patient's cochlear nerve function but his very life as well. The fenestra must be isolated from the tympanic airspace without leaving any direct connection between the middle ear and the new window to prevent postoperative labyrinthine infection secondary to onset of middle ear infection during the life span of the patient. A time-proved means for the prevention of ultimate osteogenetic closure of the newly created vestibular fenestra must also be provided to insure the functional permanency of such fenestra.
7. It is of acoustical importance that the new vestibular fenestra be placed outside of the middle ear and be covered and sealed off without leaving any direct connection between the middle ear and the new vestibular window. To increase the sound pressure difference between the round cochlear window and the surgically created vestibular window, it is essential to have the middle ear space acoustically sealed off. This way the sound pressure acting upon the intratympanic cochlear window is relatively smaller than the sound pressure acting on the newly created extratympanic vestibular window.

It should be emphasized that the secret of both the immediate restoration and permanent conservation of serviceable hearing in middle ear deafness of otosclerotic origin, with surgical means, lies in replacing the functionally impeded intratympanic vestibular fenestra ovalis with a newly created extratympanic vestibular fenestra within the wider bony ampullar portion of the external semicircular canal immediately posterolateral to the tympanic course of the facial nerve canal.

The fenestra novovalis operation was developed by observation, consideration, and ultimate application of the above-mentioned requirements. This is the reason why this type of operation makes it possible not only to predict preoperatively but also to obtain postoperatively the maximum obtainable and permanently maintainable hearing improvement in clinical otosclerosis.

119 E. 74th St. (21).

Antibiotics in Food Preservation.—Antibiotics have been suggested for use in . . . foods, such as milk, eggs, and fresh vegetables. Because antibiotics may inhibit starter cultures used in cheese manufacture, dairy products that are going to be used for the production of cheese should under no circumstances contain antibiotics. Although there are glowing reports of the advantages to be realized from use of antibiotics, it is well to sound again a note of caution. Regulatory officials in the United States believe their safety has not been established for most of the proposed uses. The status of antibiotics in food in the United States is: They may be used so that no residues remain in the food. This is acceptable. They may be used so that residues remain in the uncooked food. This is acceptable provided the food is always cooked and the cooking always destroys all of the antibiotic (and in the United States provided the residues in the uncooked product are within an official tolerance). They are being considered for uses which will leave some of the antibiotic in the food as it is eaten. Their safety under these conditions has not been established.—C. G. Durbin, Antibiotics in Food Preservation, *American Journal of Public Health and the Nation's Health,* October, 1956.

ADVANCES IN OTOLOGY

Gordon D. Hoople, M.D., Syracuse, N. Y.

In considering otological advances to overcome hearing loss, it is almost right to say that no case of conductive hearing loss is without possible help by surgery. In the case of perceptive hearing loss, however, future advances will probably be more preventive than therapeutic. Among many causes of perceptive hearing loss, at least four are on the verge of a preventive solution. These are hearing loss due to (1) the difficulties of Rh-negative pregnancy; (2) the loss of proper blood supply to the ear following atherosclerosis; (3) allergic sensitivity which may cause degeneration of the nerve of hearing; and (4) loss of hearing due to exposure to industrial noise. Probably the major reason today for improvement in the avoidance of hearing losses is the curtailment of infections.

I should like to review hearing losses as otolaryngology has looked upon them during my professional lifetime. I entered otolaryngology about the time that the audiometer was first available for clinical use. I had my training in one of the best institutions in the United States and received it from the hands of most competent men, including the finest pedagogue otolaryngology has ever known, the late Dr. Harris P. Mosher. There was no audiometer in clinical use during all of my residency, and I practiced for a few years without the aid of such an instrument.

Early Diagnostic and Remedial Methods

It is interesting, in the light of modern otology, to realize what one could accomplish with whispered and spoken voice tests together with tuning forks and the Galton whistle. Patients with pure perceptive and pure conductive hearing losses could be isolated, but patients with mixed losses were less satisfactorily classified. There was no general recognition then that a person with otosclerosis might have some concomitant nerve degeneration. As a matter of fact, many cases of otosclerosis went undiagnosed, for the teaching of that day laid stress upon the statement that a patient with otosclerosis must have a patent eustachian tube and a normal drum head. This was tantamount to suggesting that infection could not occur in an otosclerotic ear. The advancing hearing loss in a patient with otosclerosis with scarred drums was deemed due to a "chronic progressive adhesive deafness" because the adhesions grew tougher and less flexible with advancing years.

Not only did these mixed losses prove puzzling but even the pure conductive and pure perceptive losses could not be properly classified. This is not surprising when one considers the diagnostic methods available in the mid-1920's. Even today, we are only beginning to appreciate the difference between a lesion of the end organ and nerve involvement, and we had to wait till recruitment tests had become popular and testing of hearing by monitored speech had come into its own before this difference could be assayed. It is interesting to note that recruitment was recognized and described by Dr. Fowler Sr. many years before it was suggested that this phenomenon might be useful in differentiating Ménière's syndrome from acoustic neuroma. In the mid-1920's it would have taken considerable temerity to classify as a pure perceptive loss an audiogram which showed a greater loss in the low tones than in the higher frequencies.

We were resigned, in my beginning days, to the fact that we could do nothing with irreversible losses—both perceptive and conductive. We awaited termination of acute suppuration with the hope that, in each instance, it would leave no hearing loss in its wake. Fortunately, more often than not, it left none. Even the lowly and remediable secretory otitis was frequently missed and thus went untreated. We stood in awe of hearing losses. We suggested hearing aids of the kind then available and hoped they would be helpful.

If this sounds derogatory, it is not meant to be so. I have a profound respect for my seniors in otolaryngology. They taught me so much that I shall be forever grateful for their efforts. They were artists in the techniques of the day, and they were responsible for saving many lives. The curtailment of infection is probably the major cause for the difference between my beginning days and 1957.

Have we not come a long way? It is almost right to say that no case of conductive hearing loss is without possible help by surgery. This all began when our honorary chairman, Dr. Julius Lempert, so perfected the fenestration operation that he could get lasting hearing improvement from it. Further, he could teach its technique to others so they could do likewise. It is only natural that surgery for congenital atresia, tympanoplasty, and mobilization of the stapes followed. It is interesting, too, to speculate that the surgical triumphs are successful to the degree that they are not only because of the perfection of these techniques by their authors but also because the after care is benefited and largely con-

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Chairman's address, read before the Section on Laryngology, Otology, and Rhinology at the 106th Annual Meeting of the American Medical Association, New York, June 5, 1957.

trolled by the use of the antibiotics. It is logical to assume that further advances will be made which will be built on the background of these techniques. The other day, I was faced with a dilemma. A patient on whom a radical mastoidectomy had been done, with a resulting major hearing loss in that ear, presented himself with a cholesteatoma behind the drum in the opposite ear. With use of the endaural technique and the principal behind the mobilization exposure, a cholesteatoma which extended from the antrum to the floor of the tympanum was removed without disturbance of the ossicles (which were intact). The drum and the cutaneous canal wall were replaced. The cavity was closed by sutures as in a simple endaural mastoidectomy, and two weeks later a hearing test revealed normal hearing in this ear. Five years ago a radical mastoidectomy would have been done, with a handicapping hearing loss as a probable result. Such surgery is possible because some have blazed the trail with techniques which were unknown in my beginning days.

Prophecies for the Future

I have just said that it is almost right to say that no case of conductive hearing loss is without possible benefit of surgery. What of the future of perceptive losses? I believe we will see fewer of these in the future than we have in the past. This is not because I believe a cure is just around the corner. Parenthetically, a cure looks impossible now, but so did one for otitic meningitis 20 years ago. I have seen too many medical miracles in my lifetime to state categorically we will never have a cure for perceptive hearing losses. But a cure is not on the horizon now, so why do I say I think there will be fewer perceptive losses in the future? I think it will come about by prevention. Let me mention a few ways through which this may come to pass.

Among several causes, four come to my mind at the moment which have crippled many persons in the past and which may be on the way out; some of them actually are. The first of these are the conditions which cause a child to be born with a congenital hearing loss. There probably always will be the sporadic case of hearing loss in a newborn child, despite all the preventive measures we institute. We do not know the cause in each instance now, but we are gradually learning some of them. We now know that the severe jaundice which sometimes follows an Rh-negative pregnancy may cause a severe hearing loss. We also know that a baby who is a so-called blue baby in the first week or so of life may suffer a hearing loss because not enough oxygen is in the blood in these first few days to give adequate nourishment to the ears so they can live to the full. The result is that part of the ear dies and never functions again. We know, too, that rubella suffered by a mother in the first trimester of her pregnancy may result in the birth of a child with a severe hearing handicap. These are three conditions which we know can cause a congenital hearing loss.

There is hope that the appropriate management of an Rh-negative pregnancy may prevent the occurrence of marked jaundice in the baby, who otherwise may have a severe hearing loss. The proper administration of oxygen or the employment of other necessary remedial measures to a blue baby may prevent damage to hearing. Should abortion be induced in a young woman who has had rubella in her first three months of pregnancy? This question has been raised. There are arguments which say no, particularly religious ones. Will an appropriate serum promptly administered be the answer? Here are possible preventive measures which were not in existence a mere 10 years ago. Here is hope that there will be fewer congenitally deaf babies in the future.

A frequent cause of hearing loss in later life is that which is due to the fact that the ear does not have its proper blood supply, i. e., the loss that follows arteriosclerosis or atherosclerosis. Some very exciting research is under way, the final conclusions of which are not yet available, which shows that it may well be that proper medication and diet will prevent atherosclerosis and thus eliminate the hearing loss due to poor blood supply to the ears. To prevent this type of loss, a physician must be aware of the fact that the individual has poor vascular supply to the ear and that because of this a subsequent hearing loss may occur, or, if a loss is already present, an additional loss will occur if remedial measures are not instituted. This is preventive medicine of the highest order. That all hearing loss due to this cause may be prevented is not a prediction. Research only suggests that it may be, but this is certainly exciting. It is particularly so, because very often in this type of hearing loss a hearing aid has no value.

A third cause of hearing loss which may diminish is that which is due to allergy. Allergic sensitivity sometimes includes the ear. Occasionally, this causes a sudden severe loss. More frequently, however, as a result of repeated minimal allergic episodes throughout life, in later years there is a fair degree of the loss of hearing due to gradual degeneration of the nerve of hearing. Many children, as well as adults, today are under allergic management, and, because of this, I predict that in the future we will see much less of this type of hearing loss than we see today. For some of the adults, allergic management has been instituted too late to prevent a loss. The great hope is with the children.

Lastly, I think of the loss of hearing that is due to exposure to industrial noise. To affect hearing, industrial noise must be very loud, and ears must be exposed to it over a period of years. Hearing loss is found frequently in many workers in the heavy industries. Fortunately, the ears of all workers are not equally sensitive. Some are resistant to noise exposure, but the number of men who are riveters, chippers, and drop forge hammer workers and who have a considerable hearing loss due to exposure to the noise of their occupation totals more than one likes to think. This has been recognized as a threat to hearing for more than 100 years. Fosbrooke, as long ago as 1831, wrote about this kind of hearing loss, but, unfortunately, very little was done about its prevention until recently.

Industry was unwilling to take steps to correct this situation because there had been no claims for compensation for industrial hearing loss. Apparently, management felt that to institute corrective measures would awaken labor to the fact that this was a compensable condition. Management evidently feared a flood of claims. Their fears were correct, because the flood of claims has begun. Awakened by the activities of the Committee on Noise in Industry of the American Academy of Ophthalmology and Otolaryngology, industrial management, union leaders, and insurance officials are now very cognizant of this industrial hazard. Preventive measures in the form of reduction of noise at its source and the prevention of damage to the ears by the wearing of ear defenders if the noise is not reducible to a safe limit are fast becoming the order of the day. Some really significant changes in the picture are just around the corner.

If these four causes of hearing loss are even partly eliminated, the amount of human suffering which can be eliminated is incalculable. There is promise that this may be so in each one of these instances.

In relating to you the techniques now available for use in helping those who have hearing handicaps, which our forebears did not have, and the very exciting news that some hearing losses may never occur at all, I do not mean to say that the problem of hearing losses will disappear. We will undoubtedly have a good deal of it with which we must cope for the rest of our lives, but just as today we look askance at one who condemns a young child to a life of limited usefulness by saying "It is deaf and dumb" and refuses to do anything about it, some of our descendants will probably look back on this day and wonder why we had so much hearing loss, why we managed it so poorly, and why we allowed it to become such a handicap. It is thrilling to take these peeks into the future and to be a part of the present-day advances in alleviating conductive losses. The contemplation of this should make us all wish to double our efforts. There is every promise that there will be many fewer individuals with hearing handicaps. It is exciting to be a part of this glorious picture.

1100 E. Genesee St. (10).

REDUCTION IN ELEVATED BLOOD CHOLESTEROL LEVELS BY LARGE DOSES OF NICOTINIC ACID

PRELIMINARY REPORT

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Prompt and sustained reduction of blood cholesterol levels was obtained in nearly all of the hypercholesteremic patients who received large doses of nicotinic acid. Daily doses higher than 3 Gm. of nicotinic acid were required in more than 50% of the patients and in some cases 6 Gm. daily were needed to consistently reduce the blood cholesterol level. No dietary restrictions were imposed in this study. The mechanism by which nicotinic acid produces the observed changes in blood lipids remains obscure.

Previous studies by one of us (W. B. P.) and associates at the Mayo Clinic showed that significant reductions of levels of blood cholesterol and total lipids followed administration of large doses of nicotinic acid (niacin) in persons with hypercholesteremia.[1] The ratio of beta-lipoprotein cholesterol to alpha$_1$-lipoprotein cholesterol was also reduced by therapy with nicotinic acid. Phospholipids remained essentially unchanged, resulting in lowering of the cholesterol-phospholipid ratio. Substitution of a placebo resulted in return of cholesterol levels and the lipoprotein fractions to pretreatment levels. Further administration of nicotinic acid re-

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ed in reduction of the lipid constituents similar to initial response.[1b] The effect of nicotinamide (ni- amide) was not studied.

The present study was undertaken to confirm the ults of the Rochester group, to obtain further expe- ice with different doses of nicotinic acid, and to gin to evaluate the effect of nicotinamide on blood ids. Blood cholesterol levels only were determined, itting the total lipid and lipoprotein determina- ns, which had varied in the same direction and in out the same magnitude as the cholesterol levels in e earlier studies.[1] The results are so impressive that consider a preliminary report to be justified at this ne.

LE 1.—*Mean Cholesterol Levels at Intervals During Therapy with Nicotinic Acid*

	Mean Cholesterol Levels, Mg. per 100 Cc.		
uration, Wk.	Group 1 8 patients	Group 2 16 patients	Groups 1 & 2
0	334	320	325
2	270	269	269
4	251	259	257
6	269	262	264
8	275	263	267
10	271	269	270
12	266	261	263
14	259		
16	241		
18	275		
20	273		
22	285		
24	272		
26	257		
28	225		
30	252		

Material and Methods

Patients were selected for study if the blood choles- ol level was consistently higher than 260 mg. per 0 cc. on at least two determinations before therapy. ie average pretreatment level was 270 mg. per 100 . or higher in all patients.

Cholesterol determinations had originally been per- med in these patients for a variety of reasons. Nine tients had survived myocardial infarctions. Three hers suffered from angina pectoris, and two patients id arteriosclerosis obliterans with claudication. Two tients had survived cerebral infarctions. Two had abetes mellitus. Xanthelasma of the eyelids had been oted in five patients, xanthoma tendinosum in one, nd premature arcus senilis in two. Five patients gave history of hypercholesteremia and/or atheroscle- otic disease in members of their families but showed o evidence of these clinical states themselves.

Nicotinic acid was administered initially in doses of Gm. daily in the form of capsules each containing 00 mg. Two capsules were given three times daily fter meals to minimize side-effects. This dose was con- inued for 12 weeks in all patients. Then, if the blood holesterol was normal (less than 250 mg. per 100 cc.), he same dose was continued, or, in a few patients, a naintenance dose of 1.5 Gm. per day was tried. In patients whose cholesterol levels remained above normal after 12 weeks, the daily dose was increased to 4.5 Gm. and later to 6.0 Gm. in some cases, depending on the response. After 30 weeks of therapy with nicotinic acid, nicotinamide was substituted in a dose equal to the most effective dose of nicotinic acid.

All patients were urged to continue eating exactly as they had before the study, so that the only variable introduced was the administration of nicotinic acid. Except in one patient (case 9) on a low-fat diet and two diabetic patients (cases 2 and 14) on special diets, all patients can be considered to have been eating an average American diet.

Blood samples were drawn at two-week intervals for cholesterol determinations by the method of Drekter.[2] Determinations of sulfobromophthalein (bromsulfalein) clearance and blood nonprotein nitrogen and urinalysis were performed after 8 to 32 weeks of therapy in 19 patients.

Results

Changes in Cholesterol Levels.—Twenty-four patients have thus far been followed for 12 weeks or longer. Of these, eight patients (group 1) have completed 30 weeks of therapy with nicotinic acid and 4 to 12 weeks of nicotinamide, permitting some preliminary observations regarding the latter drug. The remaining 16 patients (group 2) have completed 12 to 30 weeks of therapy with nicotinic acid.

Table 1 shows mean cholesterol levels for both groups of patients at two-week intervals. The prompt reduction effected by nicotinic acid is shown in the mean decrease of 56 mg. per 100 cc. in the first two weeks of therapy. The effect of the initial dose (3 Gm. daily) is shown by a mean reduction of 68 mg. per 100 cc. in group 1 and 59 mg. per 100 cc. in group 2 in the first 12 weeks. The effect of larger doses is shown by a further mean reduction of 14 mg. per 100 cc. in the subsequent 18 weeks in group 1.

TABLE 2.—*Average Cholesterol Levels During Therapy with Nicotinic Acid and Nicotinamide (Group 1)*

		Av. Cholesterol Levels, Mg. per 100 Cc.			
Case No	Age and Sex	Before Therapy	0-12 Wks	12-30 Wks	Nicotinamide Therapy
1	56 M	480	291	284	342
2	54, F	305	241	252	280
3	44, F	308	241	265	284
4	53, F	337	231	249	349
5	56, M	272	276	246	301
6	38, F	315	269	260	318
7	61, M	298	269	219	326
8	50, F	360	299	292	254
Av		334	267	258	319

As shown in table 1, the eight patients of group 1 showed a reduction in mean cholesterol level of 64 mg. per 100 cc. in the first two weeks of therapy, from 334 mg. to 270 mg. per 100 cc. At the end of 30 weeks of therapy, the mean cholesterol level had been reduced further to 252 mg. per 100 cc.

In the eight patients of group 1, the plasma cholesterol level after 12 weeks of therapy (3 Gm. of nicotinic acid daily) was normal (less than 250 mg. per 100 cc.) in three, significantly reduced (40 mg. per 100 cc. or more), but not to normal in two others, and not significantly reduced below the average pretreatment level in three. At the end of 30 weeks of therapy, normal values were found in six of the eight patients. One of the other patients showed significant reduction but not to normal, and no significant reduction had occurred in one.

Average values for these patients in each period of treatment are shown in table 2. The effect of doses larger than 3 Gm. daily (in all except cases 2 and 4) is reflected in the lower averages for the 12-to-30-week period as well as by the larger number which had reached normal levels by the end of 30 weeks. The mean levels for the 12-to-30-week period might have been lower except for the use of decreased doses of nicotinic acid (1.5 Gm. daily) in two patients. Cases 3 and 4 were given daily doses of 1.5 Gm. for eight weeks (from the 12th through the 20th week) with return of cholesterol levels to higher values in both instances, necessitating resumption of the original dose. One patient (case 2) differed from all others in the study in that a daily dose of 1.5 Gm. of nicotinic acid was used throughout the first 24 weeks, after which nicotinamide was administered.

TABLE 3.—*Average Cholesterol Levels During Therapy with Nicotinic Acid (Group 2)*

Case No.	Age and Sex	Av. Cholesterol Levels, Mg. per 100 Cc.		
		Before Therapy	0-12 Wks.	Further Therapy*
9	58, M	291	251	241
10	38, M	279	229	237
11	64, M	270	251	250
12	62, M	291	261	258
13	57, F	351	238	209
14	53, F	319	243	246
15	58, F	335	259	247
16	41, M	356	286	273
17	78, M	317	282	298
18	51, M	301	218	266
19	54, F	294	229	...
20	48, M	340	307	318
21	32, M	395	291	294
22	48, F	430	315	...
23	59, M	336	222	...
24	53, M	330	297	...
Av.		320	261	...

* No value given for further therapy if less than four weeks.

The 16 patients of group 2 showed reduction in mean cholesterol level of 51 mg. per 100 cc. in the first two weeks of therapy, from 320 to 269 mg. per 100 cc. (table 1). The mean cholesterol level was further reduced to 261 mg. per 100 cc. by the end of 12 weeks of therapy.

In the 16 patients of group 2, the plasma cholesterol level after 12 weeks of therapy was normal in 6 patients, significantly reduced but not to normal in 4 others, and not significantly reduced in 6. Further therapy in 14 of these patients included the use doses larger than 3 Gm. daily in 9 patients (case 12, 14, 16, 17, 18, 20, 21, and 22). The last cholest determination gave a normal result in seven patie significant reduction but not to normal in two, and significant reduction in seven. Average values for patients of group 2 in each period of therapy shown in table 3.

The effect of doses larger than 3 Gm. of nicoti acid per day in the five patients who eventually ceived 6 Gm. daily is shown in table 4. In all, incre doses were used in 15 patients whose cholesterol le were higher than normal after 12 weeks of therapy these, only two patients had consistently normal ch terol levels after daily doses of 4.5 Gm. Of the patients who have taken 6 Gm. per day, choles levels reached normal in all except one (case 8) were consistently normal in three (cases 5, 6, an Based on these results, one might predict simila provement in the seven patients who have fail respond to doses of 4.5 Gm. daily and who will receive larger doses as the study continues.

Administration of nicotinamide to the patien group 1 resulted in prompt increases of chole levels to the pretreatment range (table 2). Th sult occurred despite the use of doses equal t dosage of nicotinic acid which had produced the satisfactory response.

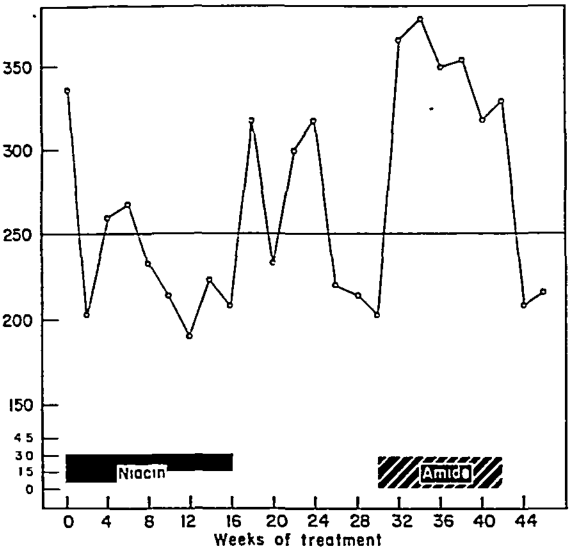
Side-reactions.—The absence of serious side tions, noted by the Mayo Clinic group, was confir Nearly all patients experienced a subjective and tive flush, which occurred briefly after each dose nicotinic acid for the first one to seven days of admin tration. This phenomenon decreased in intensity af the first day and had almost invariably subsided by t end of the first week, with an average duration three or four days. After the first week about half the patients reported that the first dose of the d occasionally caused flushing, which was, however, severe. This occurrence seems related to the size of t meal which preceded the ingestion of nicotinic a Pruritus frequently accompanied the flush and often persisted a few days longer. Urticaria occurred ver briefly in two patients and did not interfere with the apy. Three patients (not included in this series stopped taking the drug because of side-reactions: c after five days because of the flush, another after t

TABLE 4.—*Effect of Different Dosage Levels of Nicotinic on Plasma Cholesterol Levels*

Case No.	Age and Sex	Plasma Cholesterol Levels, Mg. per 100 Cc. with Different Dosages (Gm. per Day)			
		0	3.0	4.5	6.0
1	56, M	480	293	305	[illegible]
5	56, M	272	276	245	[illegible]
6	38, F	315	286	289	[illegible]
8	50, F	360	296	291	[illegible]
9	58, M	291	251	262	[illegible]
Av.		344	280	278	[illegible]

ks because of irritable bowel symptoms, and the d after several weeks because of dryness of the and blurring of vision with no objective findings n examined by an ophthalmologist before and after ose of nicotinic acid. No side-reactions were ob- ed in patients taking nicotinamide.

ulfobromophthalein tests of liver function, deter- ations of blood nonprotein nitrogen levels, and alyses revealed no abnormality in 19 patients after 32 weeks of therapy.



g. 1 (case 4).—Illustration of reduction of blood cholesterol s by administration of 3 Gm. of nicotinic acid (niacin) , return to elevated levels during the use of 1.5 Gm. of inic acid daily, reduction to normal levels when a daily of 3 Gm. of nicotinic acid was resumed, return to ele- d levels when nicotinamide (niacinamide) was substituted, reduction to normal levels when use of nicotinic acid was n resumed.

Comment

rompt and sustained reduction of blood choles- l levels after large doses of nicotinic acid in nearly of the patients studied confirms the previously re- ted results of the Mayo Clinic group.[1] The greater uction in cholesterol levels and larger percentage of es showing reduction to normal values in our series be attributed to more liberal use of doses of 4.5 or m. per day. As further experience has been ob- ed, it has become apparent that 50 to 70% of ients require doses of this order to reduce choles- l levels to normal. It also seems clearly established t continuous therapy at the same dosage is neces- y to maintain the reduced levels, since substitution a placebo or of nicotinamide resulted in prompt urn of blood cholesterol to the pretreatment range values. With very few exceptions, a dose of 1.5 Gm. nicotinic acid per day has also proved to be ineffec- e or to give suboptimal results.

Figures 1, 2, and 3 show typical cases which illustrate individual variations in response to the various doses of nicotinic acid and the lack of effect of nicotinamide. Figure 1 shows the prompt reduction to normal cholesterol levels in case 4 on the initial dose of 3 Gm. daily. When the dose was reduced to 1.5 Gm. daily, the cholesterol levels again rose. Resumption of the original dose resulted in reduction to normal levels again. When nicotinamide was substituted at the end of 30 weeks, blood cholesterol levels rose to values as high as those observed before treatment. After 12 weeks of administration of nicotinamide, nicotinic acid was again given in the original dose, followed by prompt reduction of blood cholesterol level to normal.

Figure 2 shows the failure of the patient in case 7 to respond to the initial dose of 3 Gm. per day but reduction to consistently normal cholesterol levels after use of 4.5 Gm. daily. Substitution of nicotinamide in the same dose was followed by an abrupt rise in cholesterol levels to well above the normal range. When administration of nicotinic acid was resumed, blood cholesterol levels fell to normal and have remained consistently normal.

Figure 3 shows the failure of the patient in case 6 to respond to doses of 3 Gm. daily or 4.5 Gm. daily but reduction to consistently normal cholesterol levels after

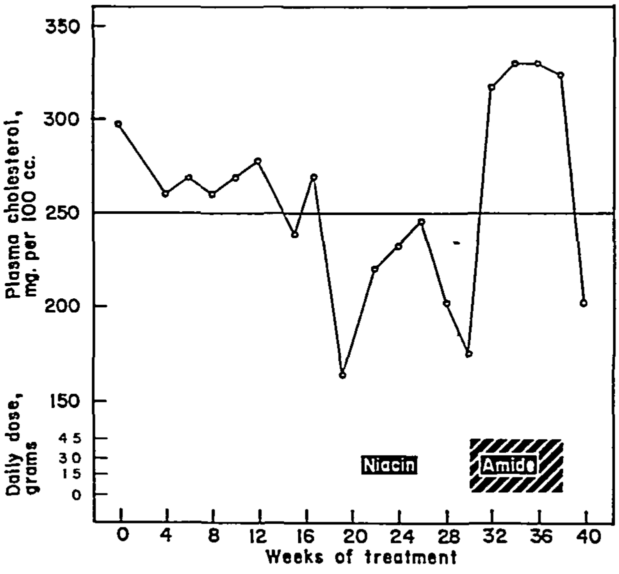


Fig. 2 (case 7).—Illustration of reduction of blood cholesterol levels to normal by administration of 4.5 Gm. of nicotinic acid (niacin) daily, return to elevated levels when nicotinamide (niacinamide) was substituted, and reduction to normal levels when use of nicotinic acid was resumed.

use of 6 Gm. daily. When nicotinamide was substituted in equal dosage, cholesterol levels returned to values as high as those observed before treatment.

The rapid disappearance of the flush which nicotinic acid produces and the absence of other significant side-reactions or toxic effects in the experience to date suggests that this method is practical for clinical use.

Since no dietary restrictions were imposed either in the present study or in the Mayo Clinic series, it is apparent that nicotinic acid reduces cholesterol and beta-lipoprotein cholesterol levels in spite of the use of an average American diet by persons with hypercholesteremia.

The mechanism by which nicotinic acid produces the observed changes in blood lipids remains obscure. The apparent failure of nicotinamide, which had an effect similar to that of the placebo employed by the Rochester group, may provide a clue to the mechanism of action because of the slight chemical difference between the two drugs. These observations may, in fact, open a new avenue of investigation regarding the mechanism which establishes the total blood cholesterol and its several lipoprotein fractions at normal or abnormal levels. The lack of cholesterol-reducing effect of nicotinamide agrees with the observations of Altschul and associates.[3]

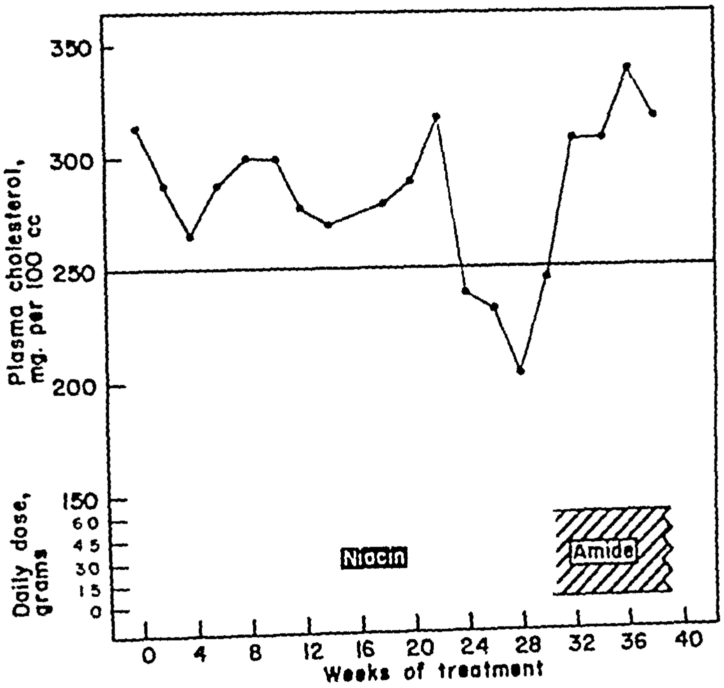


Fig. 3.—Illustration of the reduction of blood cholesterol levels to normal by administration of 6 Gm. of nicotinic acid (niacin) daily, with the return to elevated levels when nicotinamide (niacinamide) was substituted.

The accumulated experience in the Rochester and Madison series indicates, we believe, that nicotinic acid is the most effective and practical agent yet introduced for reduction of elevated levels of blood cholesterol and beta-lipoprotein cholesterol. The observed changes in blood lipids are those which have been the objective of many therapeutic programs because of the increased incidence of atherosclerosis in individuals with hypercholesteremia and elevated ratios of beta-lipoprotein to alpha$_1$-lipoprotein cholesterol. However, in spite of the well-known statistical relationship, we do not mean to imply that these changes will necessarily prevent atherosclerosis or arrest its progress. Evidence of such benefit can be obtained only by treating a large number of patients for r years and comparing the results with an untr control group. This study is now in progress. It sh be mentioned, however, that Altschul's studies rabbits showed inhibition or prevention of ather formation in animals fed nicotinic acid and cholest in comparison to a control group fed cholesterol w out nicotinic acid.[3b]

Summary

Administration of nicotinic acid (niacin) orally large doses (3 to 6 Gm. daily) to 24 patients w hypercholesteremia resulted in significant reduction blood cholesterol levels in 16 (66.7%). Normal le were attained in 6 of 8 patients followed for 30 we or longer and in 7 of 16 additional patients follow for at least 12 weeks.

Doses higher than 3 Gm. of nicotinic acid da were required in more than 50% of patients. Sig reduction in blood cholesterol occurred with doses 6 Gm. daily in four of five patients whose levels h remained above normal after smaller doses, sugge ing the possibility of future improvement in sev additional patients who have thus far failed to respo to a daily dose of 4.5 Gm.

Substitution of nicotinamide in equal dosage af 30 weeks of therapy with nicotinic acid in eight p tients was followed by prompt return of blood chol terol to pretreatment levels in every instance.

Flushing and pruritus, which occur after ingest of nicotinic acid, subsided within the first week therapy in nearly all cases. No serious side-r or toxic effects have been observed which can attributed to nicotinic acid. Nicotinic acid proved be effective in lowering cholesterol levels despite tinuation of the patients' customary diets.

30 S. Henry St. (3) (Dr. Parsons).

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The capsules of nicotinic acid were supplied by the Eli Li Company. Each capsule contained 0.450 Gm. of nicotinic ac and 0.050 Gm. of lactose. For ease of calculation, the approx mation of 500 mg. of nicotinic acid per capsule was used.

CLINICAL NOTES

ACCIDENTAL INGESTION OF A TOXIC DOSE OF CHLORAMBUCIL

REPORT OF A CASE IN A CHILD

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Chlorambucil [p-(di-2 chloroethyl) aminophenyl- tyric acid, CB 1348], a water-soluble aromatic nitro- n mustard, was developed by Haddow and his as- ciates[1] at the Chester Beatty Research Institute in ndon and has recently been used in the treatment patients with malignant lymphoma and leukemia.[2] The purpose of this paper is to report the clinical d hematological effects observed in a child from the cidental ingestion of an overwhelming dose of this ally given nitrogen mustard. A review of the litera- re has failed to reveal a previous report of this type.

Report of a Case

A 2½-year-old male accidentally ingested approximately 35 mg. (5 mg. per kilogram of body weight) chlorambucil tab- s while visiting an uncle who had been taking this experi- ental drug for an inoperable sarcoma. Three hours after this cident occurred, the child became lethargic and vomited. e grew progressively more unresponsive, and five hours after e ingestion he lapsed into unconsciousness, with generalized and mal seizures which were characterized by tonoclonic vements of all extremities, eyes rolled back in his head, wel and bladder incontinence, and foaming at the mouth. He s brought to the emergency hospital where he was lavaged th water without recovery of any of the tablets. He was mediately referred to the pediatric ward at San Francisco unty Hospital in status epilepticus. Convulsions were con- lled with intravenous administration of 150 mg. of sodium ytal and 2 cc. of paraldehyde per rectum. Intravenous ther- y with fluids was started, and 5 oz. (141.75 Gm.) of mag- sium citrate was given as a cathartic.

There was no family history of convulsive seizures, and the tient had experienced none prior to this admission. Physical amination at the time of hospitalization revealed a 2½-year- d boy who was comatose and dehydrated, weighing 14 kg. 31 lb.) with rectal temperature of 99 F (37 C), pulse 96 per inute, respiration 20 per minute, and blood pressure 108/72 m. Hg. There were no positive findings in the head, neck, ngs, or heart. Abdominal and rectal examinations also were remarkable.

Neurological examination revealed the deep tendon reflexes be hyperactive but equal bilaterally. Babinski reflex was esent bilaterally; however, Kernig, Brudzinski, and Hoffmann gns were absent. The cranial nerves were intact. The sensori- m was cloudy. Muscle strength and coordination were difficult evaluate because of the patient's comatose state.

During the first 24 hours after admission, the patient re- ained comatose or semicomatose, during which time he had o grand mal seizures, lasting 30 seconds each, and several bouts of vomiting of clear fluid. He was given fluids intravenously, oxygen nasally, sodium phenobarbital (15 mg. twice, intravenously) and prophylactic procaine penicillin G (300,000 units).

On the second hospital day, the patient improved markedly, with complete disappearance of symptoms and signs. Administration of oxygen nasally was discontinued. After 12 hours on therapy of clear liquids, he was put on a high-protein diet with multivitamins (Tri-vi-sol, 0.6 cc. twice a day). Phenobarbital (15 mg. twice a day) was administered for four days, and then discontinued.

His 43-day hospital course was complicated by intermittent idiopathic elevations of temperature, varying from 101 to 103.4 F (38.33 to 39.66 C) (rectally). Because of this, the penicillin therapy was discontinued after 18 days and tetracycline therapy (400 mg. a day) was begun and continued for 16 days. Rubeola developed on the 36th hospital day in spite of a preventive dose of gamma globulin (3 cc.) on the 19th hospital day. He recovered from the rubeola without sequelae. His weight remained unchanged throughout his period of hospitalization.

Routine urinalysis on admission was unremarkable. However, about an hour after he had been catheterized on the first hospital day a urine specimen contained a trace of albumin and 10 red blood cells per high-power field. Repeated urinalyses throughout the hospital stay were all normal.

Repeat guaiac examinations of the stool were negative for blood. Liver and kidney function studies were all within normal limits throughout his hospital stay. The hemogram on admission revealed a slight hemoconcentration and polymorphonuclear neutrophil leukocytosis. This could be explained by his state of dehydration and convulsive disorder. On the fourth day after drug ingestion, a marked leukopenia with depression of both the lymphocytes and polymorphonuclear neutrophils was observed. There was a lymphocytosis on the 12th day, with a return to the normal level on the 27th day. The polymorphonuclear cells showed a gradual return to the normal level by the 27th hospital day. The red blood cells and hemoglobin level remained within the range of normal throughout the hospital course (see figure). The platelets appeared adequate on peripheral blood smears and no abnormalities of bleeding or clotting were observed clinically. The blood picture became complicated with the development of rubeola on the 36th hospital day, at which time his hemogram showed the typical measles reaction, i. e., leukopenia with lymphocytosis, with a return to normal after his recovery.

Bone marrow examinations were made at weekly intervals and were all within normal limits. After discharge from the hospital, the patient was followed intermittently in the outpatient clinic. He has been completely asymptomatic. A psychometric examination revealed the child to have an intelligence quotient of 89 according to the Stanford-Binet, Form L, which the psychologist interpreted as low normal intelligence. An

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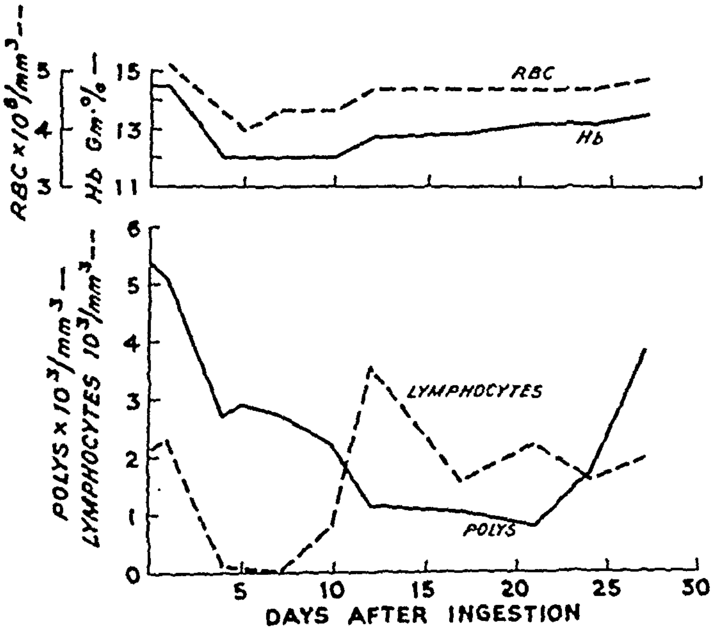
From the Department of Pediatrics, University of California edical Center.

electroencephalogram was interpreted as being within normal limits. Follow-up hemograms have revealed normal blood cell counts.

Comment

Galton and others[2a] reported that a dose of 0.1 to 0.2 mg. per kilogram per day of chlorambucil for three to six weeks was effective in the treatment of patients with malignant lymphoma. These workers, as well as Altman and others[2c] who worked with leukemia patients, observed that the drug produced an immediate lymphopenia and delayed neutropenia which persisted during the period of administration and promptly disappeared when the drug was withdrawn. With therapeutic doses, they noted relatively few toxic effects except for nausea and vomiting. Galton and others[2a] found that patients who received a total dose approaching 6.5 mg. per kilogram risked possible irreversible bone marrow damage. They concluded that the hematological effects produced by this drug were related to the dosage, and the dosage likely to cause bone marrow damage is well beyond the therapeutic range.



Blood response to oral ingestion of nitrogen mustard (chlorambucil).

Elson[3] working with rats which were given a single intraperitoneal dose of 12.5 mg. per kilogram of chlorambucil observed a transient lymphopenia and neutropenia with rapid return to normal of both the bone marrow and blood picture. This case is similar. However, the patient did not develop obvious bone marrow depression over the 24-week period after ingestion, and the red blood cell count, hemoglobin level, and platelet count remained essentially unaffected by the drug.

Overdosage with this drug produced vomiting, lethargy, convulsions, and a comatose state in an otherwise normal child. Similar effects have been observed by Boyland[4] and Rutenburg and others animals receiving toxic doses of other alkylating cy toxic agents. The previous investigators[6] have reported any neurotoxic effects of chlorambucil.

Our patient exhibited intermittent episodes of fe which were believed to be related to the prophyl antibiotics. However, it is possible that this ag might have temporarily affected the thermoregula center. Careful follow-up of this child will be c tinued to determine whether there is any detrimen long-term effect of this drug.

Summary

A 2½-year-old child accidentally ingested a m sive dose of chlorambucil (CB 1348) (5 mg. p kilogram of body weight, total 70 mg.). This p tient showed relatively few toxic effects. The p cipal reaction was neurotoxic, characterized by convulsive disorder and comatose state that w readily corrected over a relatively short period time. The neutrophils and lymphocytes were te porarily depressed during the first 27 days af ingestion, but no recognizable bone marrow dep sion was observed. The red blood cell series, he globin level, and platelet counts remained essenti unaffected by this drug. Chlorambucil caused apparent disturbance to the renal and hepatic fu tions, or to other systems of the body.

We should like to express our appreciation to Dr. R Wallerstein for interpretation of the bone marrow smears to Dr. Edward H. Strisower for his study of the peripl blood smears.

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6. Footnote 2*a*, 2*c*, and 3.

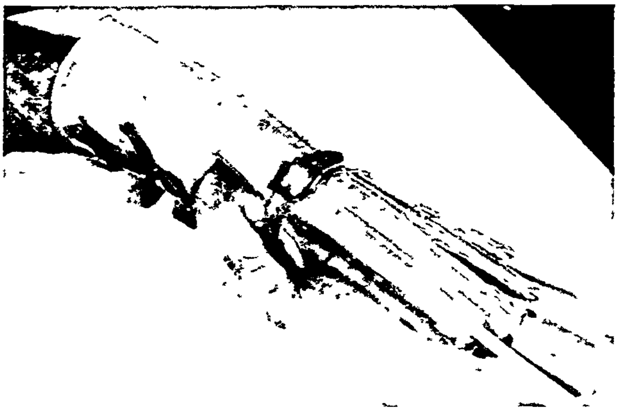
A GLOVE-TYPE EXTENSION HAND SPLINT

Frederick W. S. Modern, M.D., George V. Devins, B.A., R.C.T.
and
John C. Russey, Cert. Prost. Orthot., Long Beach, Calif.

A glove-type extension hand splint has been under vestigation in the Physical Medicine and Rehabilita- n Service of the Veterans Administration Hospital, ng Beach, Calif. After numerous modifications we ived at the following model. We have constructed a ve in which the fingers of the glove are replaced by gerlings which permit each finger to be secured dividually. The fingerling begins just proximal to the st interphalangeal joint and ends beyond the fin- rtip. The fingerling is attached to a tongue of leather nich forms part of the body of the glove.

The back of the glove carries a leather tunnel which ntinues into the tongue of each fingerling. Metal ays are inserted into each tunnel, as many as nec- sary to overcome the flexor spasm or contracture ithout causing the patient undue discomfort. A rap at the metacarpophalangeal level prevents e fingers withdrawing from the fingerlings during ute spasm. The front of the glove is split and is rovided with straps to make the application of e glove easier.

The advantages of this type of extension splint are that it is easily applied, is light weight, has good cosmetic effect, and is completely adaptable to the amount of spasm and/or contracture of each individual finger and that nearly all patients are able to put on and take off the splint without assistance.



Dorsal aspect of splint. Note tunnels with stays in place. Number of stays depends on resistance to be overcome and tolerance of patient.

From the Physical Medicine and Rehabilitation Service and e Brace Shop, Veterans Administration Hospital.

SPECIAL ARTICLE

THE U. S. ARMY MEDICAL DEPARTMENT IN WORLD WAR II

THE HISTORY OF THE HISTORY

Col. John B. Coates Jr. (MC), U. S. Army

When Brig. Gen. Frank W. Weed, M. C., had nished his labors as editor of the history of the United States Army Medical Department in World War I, he wrote a most excellent and readable account f his experience.[1] In it, he remarked that if the personnel responsible for writing the history of the War f the Rebellion had been available at the time the history of World War I was written, and if they had kept abreast of the times, the latter history would have been produced much more expeditiously in respect to quality, time, and money. Even if they had not kept abreast of the times, they would have been very useful indeed. In fact, almost the only assumption in which General Weed was wrong was contained in his sound advice—which was not followed—that a directive, with the force of Army Regulations, should be prepared to provide for a continuing historical survey against a future war, though "many years may elapse before we become involved in a war, whose magnitude would warrant having a medical and surgical history for it comparable in size either for the Civil War or for the World War." He wrote these words in 1929, and it was only 12 years later that the United States entered World War II.

Director, the Historical Unit, United States Army Medical ervice, Walter Reed Army Medical Center, and Editor-in-Chief of "Medical Department, United States Army in World War II."

Read in summary before the annual meeting of the Society f Medical Consultants to the Armed Forces, Washington, D. C., Nov. 26, 1956.

The history of the U. S. Army Medical Department in World War II is far from completion, and the time to write the definitive history of how it was written has not yet arrived. The story was, however, ably begun by Brig. Gen. Albert G. Love, M. C., U. S. Army (Ret.), first Director of the Historical Division when it was revived in the Office of the Surgeon General in 1941.[2] Another report was made in 1954 by the fourth Director of the Division, the late Col. Calvin H. Goddard, M. C., U. S. Army (Ret.).[3] The present communication is a further progress report.

Historical Note

It is almost exactly a century ago that medicomilitary history came into existence, with the publication, in 1858, an incredible two years after the end of hostilities, of a history of the Crimean War. That two-volume work was conceived by Andrew Smith, Director General, British Army Medical Service, at the very beginning of that war, when he found that nothing was available from previous wars to aid him in his gigantic task. As he wrote in his preface to the history: "The doubts and indescribable anxieties which result from the absence of all details calculated to instruct, under existing circumstances, led me early to determine that my successor should, provided I continued in office till the termination of the war, never have to encounter the many difficulties and perplexities which had fallen to my lot."

General Smith implemented his determination most effectively. He preserved all his correspondence and had a descriptive index made of it. He secured analyses of professional documents and reports. By these and other methods, he was able to produce a two-volume history of the Crimean War within two years after it ended, the first volume dealing with medicomilitary matters and the second, published in two parts, dealing with diseases, injuries, and wounds.

When the War of the Rebellion broke out in the United States, these volumes were available to the Medical Department, and their importance and usefulness were attested to by Surgeon (Brevet Lieutenant Colonel) Joseph J. Woodward, to whom was assigned the duty of gathering material for the history of that conflict. One of the first official actions of Brig. Gen. William A. Hammond, then the Surgeon General, had been to recommend to the Secretary of War, in 1861, that a sanitary commission be set up at once, because "we wish to prevent the evils that England and France could only investigate and deplore."

These volumes on the Crimean War, said Surgeon Woodward, in a report to the Surgeon General in 1865, gave direction to Medical Department efforts, even though British troops were fewer than those engaged in the Civil War and the climate in which they served was different. If, as General Weed wrote in 1929, there had existed during the Civil War a dependable record of earlier wars in which the United States had been engaged, epidemics might have been foreseen, even in those prepidemiology days, and diarrheas might have been less than universal. By the end of that co Surgeon Woodward wrote, with real feeling: "A tory becomes one of the most important duties of medical department of the army; a duty the ex of which would be a grave crime against the Ar the United States, and against every citizen wh future wars, volunteers in defense of his country

The Historical Unit, U. S. Army Medical Servi

The Historical Unit, U. S. Army Medical Servi Class II Activity of the Surgeon General, which h one of its functions the preparation of the histo the U. S. Army Medical Department in World W had its genesis in 1917, shortly after the United entered World War I. The Historical Board app by Gen. William C. Gorgas, then the Surgeon Ge consisted of the Librarian of the Army M Library, Director; the Assistant Librarian, Red and a statistician. Its personnel remained during various administrative reorganizations Office of the Surgeon General until its activities with the publication of the final volume of the of World War I in 1929.

General Weed's recommendation for a historical survey, to which reference has already made, was not carried out, and the only formal cal activities of the Medical Department of the during the next several years were limited to annual reports. In August, 1941, when it was o that the United States could not much longer outside of World War II, the Historical Subd (later the Historical Division and still later th torical Unit) of the Administrative Division, Of the Surgeon General, was formally set up by Gen. James C. Magee, then the Surgeon G under the direction of Col. (later Brig. Gen.) G. Love, M. C., U. S. Army (Ret.), who was re to duty for this purpose.

In March, 1942, and again in January, 19 President not only expressed his desire that pr tions should be made at once for recording the of World War II but also made suggestions f plementation of his wishes, including "drawi whatever scholarly talent might be necessary particularly desired that each agency of the g ment should have ready, as soon as possible aft ending of the war, "a good final report that wil up both what was accomplished and how the jo done."

The President's desires were implemented b War Department in a number of ways in 194 thereafter. The committee of "scholarly talent" he had suggested was appointed. Historical o were set up in various bureaus. Historical of were appointed in the Army Ground Forces, Arm Forces, and Services of Supply, under which the O of the Surgeon General then operated. The Histo Section, Army War College, was designated as advisory and coordinating office for these activitie August, 1943, the scope of the proposed history

.ed in a memorandum from the Office of the 'tant General and a Chief Historian was appointed in the Historical Branch, G-2.

return to the Medical Department, in spite of)residential direction and blessing upon historical 'ities, General Love, for almost two years, operated 'r grave difficulties, conducting his activities, as he e, "on sufferance" and proceeding most carefully s "not to attract adverse attention." During this)d his office space, and for a time his secretarial tance, were generally provided by other divisions ie Office of the Surgeon General. By slow degrees vas able to build up a staff, in spite of the strict :ime ceiling on personnel and the difficulty of pro- ng personnel who were qualified in performance 'ell as on paper.

he Chief of Staff, Gen. George C. Marshall, mani- :d great interest in the work of the Historical ision, Office of the Assistant Chief of Staff, G-2, as a result, theater, army, corps, and division his- :al teams were organized, to further his desire that history be prepared and published promptly. This ı suggested similar action to General Love, and orical officers representing the Medical Department e eventually appointed for the Alaskan Defense ımand, the Mediterranean (formerly North Afri-) and European Theaters of Operations, and the thwest Pacific Area.

resent Function and Organization of the Historical t.—As the Historical Unit, U. S. Army Medical vice, presently operates, it has a number of func- s. Among them are the following:

Preparation and publication of the history of the lical Department, U. S. Army, in World War II in the Korean conflict, as well as the history of the rvening years.

Planning of, and provision for, the historical :rage of other selected activities of the Army lical Service on a continuing basis.

Preparation and publication of the "Annual ımary of Major Events and Problems, Office of the geon General."

Collection and maintenance of documents and :r essential material for the historical program of Army Medical Service.

Provision of general clinical and administrative :arch and archival services not only for the Surgeon ıeral and branches of his Office and to the Army lical Service at large but also to federal and other 'edited agencies, both military and civilian, to gressional personnel, and to other historians and ters.

Provision of editorial and publication assistance ırmy Medical Service facilities and personnel.

Development and maintenance of liaison and sup- t of medical authorities, institutions, and related sonnel in the United States and friendly nations, rder to promote, attain, and sustain the over-all ectives and activities of the Surgeon General and Army Medical Service.

These very considerable functions are performed by 8 military and 43 civilian personnel. Military personnel include the Director of the Unit, who is a Medical Corps officer and who is Editor-in-Chief of the volumes of the history of the U. S. Army Medical Department in World War II; another Medical Corps officer, who is Associate Editor of the two neuropsychiatric volumes; and six Medical Administrative Corps officers. In addition to an administrative section, there are four other branches, namely, a Research and Archives Branch, a Historians Branch, an Editorial Branch, and a Special Projects Branch.

The Research and Archives Branch deserves a special word. It is interesting that, in his discussion of personnel necessary for a historical project, General Weed mentioned, almost at the top of his list, an experienced archival assistant. Without an adequate filing system, he pointed out, much of the material collected would become inaccessible and could be relocated later only after the expenditure of a totally unnecessary amount of time and effort.

Although the Research and Archives Branch, as such, was not set up in the Historical Unit until April, 1947, General Love took this advice to heart. From the very beginning of his tenure he gave his attention to the collecting, indexing, abstracting, and filing of all available data. He maintained an index of current medicomilitary literature. He established and maintained contact with other historical agencies in the other services, as well as with the Subcommittee on Historical Records, Division of Medical Sciences, National Research Council, of which more will be said later.

General Love's task was not simple. For security reasons, overseas reports and similar data were not always easy to secure. Restrictions on correspondence with theater surgeons and other medical officers overseas became tighter as the war progressed. Documentary material in the Office of the Surgeon General was often hard to pry loose. Much of the secrecy, both overseas and in the Zone of Interior, was, of course, essential. Much of it seemed—and still seems—unnecessary, particularly that which covered plans that had long since been consummated. In spite of every effort to prevent it, some files were destroyed and others were simply lost, the most striking example being the complete disappearance of the medical supply plans for the North African invasion.

In June, 1946, the Research and Archives Branch of the Historical Unit had only 600 linear feet of material. At the present time, it has more than 2,300 linear feet of material filed in 272 four-drawer legal-size storage cabinets. In addition, it can call upon thousands of documents in storage depots elsewhere in the country. The usefulness of this branch goes far beyond this office and other medical organizations of the Department of the Army. As word has spread of what it can accomplish, it has been called upon to supply medical and other data to various other units of the Armed Forces in the United States and overseas, civil departments of the government, members of the medical and related professions, and military and civilian elements of foreign nations. One of its recent tasks has been to supply material requested by the official biographer of Sir Alexander Fleming. The amount available was surprising both in its bulk and its potential usefulness.

Scope and Planning of the Medical History of World War II

For obvious reasons, the medical history of World War II is a far more ambitious undertaking than the medical history of World War I. In May, 1945, when the war in Europe ended, the Medical Department of the Army had the responsibility for the health and medical care of more than 3 million troops in that theater, about 500,000 in the Mediterranean Theater, about 840,000 in the Southwest Pacific under General MacArthur, and another 455,000 in the Pacific Ocean Areas. Each of the 89 Army divisions, practically all of which were deployed overseas and maintained as fighting units, was supported by some 30,000 men in service units. There were 54,000 nurses in the Army Nurse Corps. The result of this gigantic effort was the achievement of the best health record and the lowest case fatality rate for battle wounds and battle injuries experienced by the U. S. Army in its recorded history up to that time. The recording of this experience is a task of real magnitude.

In World War II, as in the Civil War and World War I, preparation for the writing of the history of the Medical Department, as already noted, began early. For this reason, the records of all three wars are more adequate than they would otherwise have been, though in all three there were errors and omissions in the planning and failure to take advantage of all opportunities. General Weed's summary of these errors and failures in World War I is equally applicable to World War II:

1. There was not enough emphasis, he said, to the officers locally concerned, on the necessity for sustained supervision over the local production of material. It would have been a simple matter, for instance, to impress upon first aid men, in the course of their training, that the notations which they made on emergency medical tags were of historical as well as of medical value.

2. It was not made sufficiently clear to the personnel responsible for them that reports required from hospitals and other medical organizations must be detailed. There is no way of securing a final comprehensive picture unless the original picture contains a great deal more than will be used, so that ultimate selection is possible.

3. Forms for collecting special material were not always thought out with sufficient care before they were distributed. Cryptic questions bring cryptic answers, and replies will never be complete unless questions are penetrating, inclusive, and worded with great care. One of the most dangerous implications of form is the inference, by those who fill it out, tha that simple act they have done all that is necessar

4. Another error in the planning of the histori both World Wars was failure to take advantag available opportunities to stress the historical prog and to collect material for it. In World War I, a cellent inspection system existed, both in the U States and overseas, and it could have been util with very little additional effort, to stress the import of collecting and preserving data. It was not so util and there were similar failures in World War II. particular error, it might be added, is no longer made. The historical program is now part of the a of the annual inspection made by the Insp General, Office of the Surgeon General, of milita stallations and organizations under the immediat trol of that office. Furthermore, current Army R tions require that all medical organizations s yearly activity reports, which, after circulation divisions and offices of the Surgeon General, a tained for further reference in the files of the His Unit. The future continuity of the historical pr in the Office of the Surgeon General is thus assu

In World War II, the excellence of telephon radio communications and the speed of combat nated many of the documents which necessarily in earlier wars. Personal diaries were not permi the combat zone, an order which had its dec bad points as well as its good points. Anyway was little time to set down matters of importa they came to pass. It is unfortunate, in retr that various medical officers with experience in fields were not delegated to write up their expe immediately after they occurred. The task Editor-in-Chief of the history of the Medical ment would have been greatly simplified, a history would have been greatly improved, if t been done.

In spite of these deficiencies, available hi sources are extensive. They consist of official re wide range and scope, as well as of individual tives. All of them are used in the medical histo cisely as they would be used in a purely history.

Individual narratives have proved of great ness. Obviously, one needs the experience platoon to describe accurately the experience bigger battle. Personal interviews have also proved value to supplement documents, to compensate their nonexistence, and to supply details which, one reason or another, have been omitted. The medic officer responsible for the blood program in Wo War II, for instance, provided a chapter for the ume on the surgical consultant system in which, in his desire to keep himself in the background, he managed to create the impression that the program had initiated itself and then rolled on, without the help of huma hands. After a day spent with this officer, who had himself initiated the program and kept it rolling, he uently single-handed, a complete and extremely ineresting chapter could be prepared. A similar session with the Consultant in Surgery, Seventh U. S. Army, ow the Assistant Secretary of Defense (Health and Medical), wrought a similar transformation in his hapter by the addition of many details of real inerest which he had modestly omitted.

By these and other methods, an attempt has been made to avoid the deserved criticism of Hanson W. Baldwin, military critic of the *New York Times*, that most writers on military subjects are "as pedestrian as quads right." On the other hand, the interview method becomes of decreasing value and reliability as time passes. That has been pointed out by Kent Roberts Greenfield, Chief Historian for the whole series of volumes on the history of World War II, who was in uniform during the war and who was formerly Professor of History and Chairman of the Department at Johns Hopkins University. In his excellent little book on his philosophy of history and his experiences in his present office,[4] Historian Greenfield quotes Sir Ian Hamilton, who, writing of the Russo-Japanese War, said: "On the actual day of battle, naked truths may be picked up for the asking; on the following morning they have already begun to get into their uniforms."

The proposal made when the Historical Unit was first activated in World War II, that all historical writing be kept current, proved entirely impractical. As General Love has pointed out, its impracticality is shown by the changing point of view, as the war progressed, on many policies, including the local use of sulfonamides and the use of plasma as a substitute for whole blood in shocked casualties.

Changing Plans and Concepts.—In July, 1940, a Subcommittee on Historical Records was set up in the Division of Medical Sciences, National Research Council, with the chief purpose of preparing a history of the wartime medical activities of all branches of the military services as well as of the Public Health Service and certain civilian agencies. The chief of the many reasons why this was not a sound plan was that the majority of the nine volumes planned were to be prepared by civilians. However competent they might be in their specialties—some of them were among the foremost clinicians in the country—the difficulties of their task seemed insuperable. To put it as simply as possible, they had had no part in the medicomilitary experiences they were called upon to relate. They had not been there.

General Love had many misgivings about this method of preparing the history, but he went along with it originally because, as he said quite frankly, he did not originally have "enough prestige to take issue with it." Except that it was modified by the addition to the nine planned clinical volumes of seven other volumes designed to cover the administrative, technical, and tactical activities of the Medical Department, this plan remained in effect until March, 1944. These additional volumes were to be supervised by General Love's office and were to be written by medical officers.

As time passed, however, it became increasingly clear that, in view of the tremendous scope of the war, the professional experience gained in it, and the multiple clinical and medicomilitary problems involved, it would be entirely impractical for professional men with no military experience at all to record the story adequately. Clearly, it was the inescapable responsibility of the Surgeon General to assume the task.

Discussions on the subject were initiated in March, 1944, and, after an extensive series of conferences, which were gradually expanded to include all concerned in the project, the official Medical Department program for the preparation of a clinical and administrative history of World War II was formally separated from the proposed program of the National Research Council.

There can, of course, be no debate about the wisdom of this change of plan, and great credit is due to those in the Office of the Surgeon General who had the foresight to initiate it and carry it through (chiefly General Love, the late Brig. Gen. Fred W. Rankin, M. C., Army of the United States, then Chief Surgical Consultant, and Col. Michael E. DeBakey, M. C., Army of the United States, then Chief of the Surgical Branch in this Division).

Editorial Policies

The Historical Unit has had five directors. The first was General Love, who deserves full credit for the initiation of the program and whose difficulties, as already mentioned, were many. The second had to divide his time between the Historical Unit and the Army Medical Library, each more than a full-time job in itself. The third held the position only briefly; in effect, this appears to have been an interim appointment. The fourth was ill during a large part of his tenure. My own appointment was effective July 21, 1954.

Administrative Volumes.—In the spring of 1946, in another change of plan, it was decided that lay historians should be employed to write the administrative volumes of the Medical Department history, on the ground that they would write more objectively than Medical Corps officers who had participated in the events. Curiously, this reasoning was directly contrary to the reasoning by which the Office of the Surgeon General had assumed the responsibility for the clinical volumes instead of leaving them in the hands of professional authors who had had no medicomilitary experience.

There is, of course, the risk of a certain lack of objectivity in material prepared by writers who, so to speak, helped to create it, but the danger is more than compensated for by the firsthand experience of these medical officers and other military personnel and by the intimate knowledge which they possess of medicomilitary matters, particularly administrative procedures and practices. No matter what their competence in the civilian field, lay historians are likely to be uninformed on such matters. The result might have been expected: Medical administration and logistics are highly specialized fields, and they have found it extremely difficult to orient themselves on them. As a result, the administrative volumes prepared under this plan have lagged. Only a single volume has been published. Other manuscripts have been prepared but must undergo extensive revision. The administrative volumes recently begun and those still in the planning stage have therefore been made the responsibility of Medical Corps and Army Medical Service Corps officers, on the ground that nobody can possibly know as much about a given experience as the man who participated in it and who many times directed it. The lack of objectivity about which so many fears were expressed has proved surprisingly infrequent in manuscripts prepared by these officers. When it is encountered, it is easily corrected by the judicious exercise of editorial authority.

It is not for a military or a medicomilitary history to fix blame or bestow praise. On the other hand, a medical historian should be perfectly free to write the facts, if he can establish their accuracy, no matter how damning they may be. A medical officer should be free to discuss controversial matters and to express his opinion on administrative matters connected with the management of patients as well as on methods of therapy. He is quite as able—perhaps better able—to evaluate these matters in retrospect than he was to act on them during the war, when he was helping to create the data he is now analyzing. These are now fundamental policies of the Historical Unit.

Clinical Volumes.—All the clinical volumes of the medical history are completely practical. The future medical officer who reads them will find certain techniques changed, but he will also find principles largely unaltered. This is because these volumes have been prepared by clinicians who were in service while the experiences which they are relating were occurring and who many times helped to shape the evolution of clinical and clinical-administrative policies and practices.

One thing that has made for difficulties in the past is the inevitable overlapping of professional and administrative details. Lay historians, with neither military nor clinical experience, apparently find it hard to understand that there is no sharp dividing line between these areas. Hospitalization, evacuation, surgical teams, staffing of hospitals, nursing services, supply—these and a dozen other phases of military medicine are of both clinical and administrative concern. Selection of personnel and recommendation of appropriate assignments, for instance, are professional responsibilities, even though they are closely tied in with administrative considerations. Equipment is a supply problem, but its development, selection, efficient use, and evaluation are professional matters. It should not be necessary as it once was, for a neurosurgeon eminent in his profession to conduct a real battle in an endeavor to insert into the history his opinion that the provision of more hemostats on the table of equipment of an evacuation hospital would have simplified intracranial surgery. This was a matter of supply, it is true, but intelligent supply must be based upon professional advice.

Most of the clinical volumes of the history have one or more chapters dealing with general administrative considerations in the particular specialty. Every chapter in the volumes dealing with the consultant system also discusses them. Just as much of the value of an official medical and surgical history of any war lies in the record of the organization and functioning of the various parts of the Medical Department as in the purely professional chapters. The clinical material, in fact, would be valueless in time of war without an efficient administrative scheme for its application. On the other hand, the primary function of the Medical Department is to conserve the fighting strength of the Army and to care for its sick and wounded. Everything else, including the total administrative function, is subordinate to that task. This is the concept upon which all the volumes of the medical history are based, whether they are administrative or clinical.

Practical Considerations

By 1954, this whole project had dragged on so long with so little to show for it, that interest in it was almost completely lacking.[4] This was evident in a number of areas.

Practically all of the clinical authors of these volumes have worked on a voluntary basis, which has its financial advantages for the Army Medical Service but also has certain practical disadvantages. There is now rather general agreement that it would have been more sensible—and in the end would probably have been easier for the authors—if they had been held in uniform until they had fulfilled their commitments for the history. For the most part, they were released with only the promise that they would perform, and the dangers of relying upon promises alone were correctly pointed out by General Love when the responsibility for the history was transferred to the Office of the Surgeon General. Most of the authors have fulfilled their obligations competently and generously, though not always promptly. As a result, the publication of certain volumes is being unduly delayed, and, as a further result, a few essential chapters in various volumes are lacking because the authors who had promised to prepare them simply failed to do so. When these failures were realized, it was not possible to remedy the situation, partly because it was too late to ask substitutes to prepare them and partly because the original authors had had the widest experience in these special fields.

In their interesting article on retrospective and prospective on medical history, written in 1919, Wood and Garrison[5] commented on these same difficulties, adding that it was incumbent upon a medical officer to carry out historical assignments, "not merely as a matter of patriotism but as a courtesy to the Surgeon neral and as a duty to himself and his Corps." In Civil War, they dealt with these matters with a ner hand. In August, 1862, when orders were issued the Surgeon General for the collection and arrange- nt of specimens for the Military Medical Museum, part of the historical program, the final sentence of responsible officer's orders stated darkly: "Should y medical officers of the Army decline or neglect to rnish such preparations for the museum, you will port the name of such officer to this office."

In the beginning, the history of World War II was tended by the same false starts and the same mis- rected and wasted efforts which had attended earlier icial histories. In particular, there were poor con- cts between the Historical Unit and the editors and thors of various volumes; what Colonel Goddard, urth Director of the Unit, called "the resulting re- ntment" can be characterized only as an under- tement.

One of the major difficulties in the early days of is program arose from the fact that clinical manu- ripts, submitted with the approval of the authors ho had prepared them and of the technical editors the volumes, had been extensively altered by pub- ations editors who had no background at all in nical medicine and only a limited experience in oduction work. This practice has long since been opped. Manuscripts received with the approval of thors and editors are now never altered in substance cept upon the initiative of the Editor-in-Chief, and, matters of any consequence, only after consultation th the author or, where indicated, with other author- es on the subject.

This particular difficulty arose from a lack of cer- inty about correct editorial procedures and was to explained by a lack of certainty on the part of recting personnel. Until the summer of 1955, the litorial Branch of this office operated without a ief, each publications editor going her own way and porting directly to the Editor-in-Chief. This would t have been a satisfactory method of procedure even the publications editors had been persons of extreme mpetence and wide experience, which they were t. In July, 1955, after a search of almost a year and, ite literally, all over the country—Civil Service could t help—a competent and highly experienced produc- n editor was found, and these particular difficulties e now ended. Publications editors are now aware at, in clinical and other technical volumes, even ght changes of expression may produce complete anges in sense. The authors of these volumes repre- nt the best professional ability in their special fields, d the unwarranted changes made in their manu- ripts in the past, of which they rightly complained, e no longer permitted. Revision in the Historical nit is now reduced to the irreducible minimum re- ired by the rules of the Government Printing Office.

Competent personnel in any field are hard to obtain d hold. It would be desirable to employ as publica- ns editors only personnel who have had at least a limited experience in production work and who have been exposed to the language and associations of clinical medicine. No such personnel have ever been employed by the Historical Unit, and the solution of the problem, once competent supervision was obtained, was a process of in-training. This is neither easy nor satisfactory, and it is also wasteful. The best workers in this special field are those who, over a period of years, have accumulated their knowledge and skill by a process of osmosis rather than by direct indoctrination and formal training. In-training is a compromise, but one which is at last beginning to pay off.

A certain amount of verification of data is necessary, as will be pointed out shortly, even in the clinical volumes of the history. This necessity implies, or should imply, sufficient background on the part of publications editors to recognize the difference between established facts and facts of general knowledge, which do not require verification, and those data which must be verified. It should also imply the ability to distinguish between factual data and the clinical opinions and conclusions which are exclusively the affair of the author. A publications editor who does not know what not to check as well as what to check can be a real handicap in an office, as past delays in the publication of clinical volumes of this history have clearly proved.

One serious defect still exists in the set-up of the Editorial Branch of the Historical Unit—the lack of a trained medical indexer. This deficiency is particularly serious in the clinical volumes, which cannot be useful tools unless they are provided with comprehensive indexes. The preparation of an index of this kind, in which the listings not only are adequate but also are correctly related to each other, is not a task for untrained personnel. This problem, to date, has been handled by a series of expedients, none of them really desirable and all of them wasteful of time, trained personnel, or both. Meantime, the search for a publications editor with medical indexing experience still continues.

At the present time, the Editor-in-Chief of the history personally reads all manuscript in its final form (as well as, very often, in preliminary form). All production work, as just mentioned, is now supervised by a competent and experienced chief production editor. Schedules of production are established and maintained. The variation in editorial style from volume to volume which characterized the first books published in the Medical Department series has now ended. A standard format, type face, and general lay-out have been established. There is a consistent form for tables of contents, including lists of illustrations, tabular data, and the academic and other appointments of contributors. Index listings are also consistent. The last two volumes published ("General Surgery II" and "Orthopedic Surgery in the European Theater of Operations") are the first to be published under the circumstances just described. They represent the finest work of which the Government Printing Office is capable.

Statistics.—A major problem in the past has concerned statistics. The Statistical Division, Office of the Surgeon General, supplies and verifies all official statistics, such as theater-wide and Army-wide incidences of total and special types of injuries and diseases, case fatality rates, hospital stay days, and similar items. A distinction must be made, however, between these official statistics and special statistical studies made, just as in civilian life, by qualified medical officers because of their own particular interest in certain subjects or at the direction of their superior officers. The whole section on abdominal injuries, for instance, in the volume entitled "General Surgery II" is based on statistics of the 2d Auxiliary Surgical Group which were collected, as a special project, under the direction of Col. James H. Forsee, M. C., the Commanding Officer. For a number of reasons, chiefly the selective element, these statistics do not correspond with the official statistics. They are also broken down into details which would be impractical in officially collected statistics. Similar special studies appear in other volumes.

All of these statistical studies were analyzed fairly and in the light of professional knowledge and experience. The conclusions drawn from them are warranted, if not to professional statisticians, to professional medical officers of wide knowledge, training, and experience. Clinicians are in general agreement that neither diagnosis nor therapy should be deferred until a level of statistical significance has been achieved. If the profession had waited for a level of statistical significance in regional enteritis, it would not now know what it knows about the disease; the original description, which is still essentially correct, was based on the observation of 14 cases, a sample which many a professional statistician would probably view with horror. Similarly, many of the cardiac and vascular operations which are now achieving miracles would still be in the testing stage if they had not been generally employed before statistically significant proof of their value had been secured. The approach to the personally collected statistics in the medical history of World War II is along these same lines.

Documentation.—The question of adequate documentation in an official history is of great importance but is reduced to nonsense if the approach is not along lines of common sense. Greenfield states that, during World War II, the Army produced 17,120 tons of records, enough to fill 188 miles of filing cases set end to end.[4] The reviews of some of the purely military volumes mention that they "stagger under prodigious and pedantic minutiae" and "practically groan under their load of footnotes." This kind of false scholarship is just as undesirable as carelessness in documentation when documentation is required. The present endeavor is to strike a happy medium, to use precise references to official documents, to check all facts which can be checked, particularly when they are disputatious, and thereafter to accept the word of the man who was there, even though his recall is perhaps less than tot This is in line with Baldwin's opinion that too mu research makes a historical writer unable to select a summarize, that trivia may obscure lines of devel ment, and that it is well for the writer, at least to so degree, to free himself from what Baldwin well ter "the hangman's noose of scholarship."

The Use of Proper Names.—The history of the Ci War followed what General Weed, as well as Wo and Garrison, termed "the bureaucratic practice" o giving no credit to individual authors. In World War I all chapters of the medical history were, properl accredited to the men who wrote them, and the sa policy is being followed in the history of World W II. For one thing, this is only simple justice. For a other, a great many of these names carry with them clinical or military authority, or both, that would totally lacking in anonymous contributions.

Furthermore, actual names are mentioned throug out the history as is necessary. "Hamlet" could scarc ly have been written without mentioning Haml This is, of course, in violation of the old rule th one uses a name in history only when the menti would embellish the history, never when it wou embellish the name. Names are mentioned in history of the U. S. Army Medical Department World War II just as they would be mentioned any other kind of writing, if only to avoid the cumb some wording and actual confusion which can ens when one uses only titles.

Peripheral Editing.—Bernard DeVoto,[6] himsel Pulitzer prize winner in history, had some useful marks to make about what he termed "compulsiven about unimportant error." There will always be, said,

> small errors of fact, small misstatements, small misconcepti some of them will result from the author's inadvertence others from his blithe ignorance—and they do not matter in least. What does matter is that there have been no impor errors, and it is folly to waste care that might be spen preventing *them* in the illusory hope of preventing mar ones. . . . There is a professional tendency to make equally important, and in fact to penalize the peripheral e more than a cardinal and central misconception. The pro sional vision is trained to be so microscopic that it someti ceases to be binocular.

Compulsiveness about unimportant error is pro ably the chief reason for previous delays in the pub cation of the volumes of the history of the Medi Department in World War II. It is now ended. No o volume in the series will represent perfection in eve sense. All of them, no doubt, will contain minor erro of omission and commission; perfection is seldo achieved in this imperfect world. Authors, editors, a everyone else connected with these volumes ha done their best, and the result will be an honest, fact ally correct, well-rounded account of the work—th outstanding work—of the Medical Department of th Army in World War II.

rocessing of Manuscripts.—Certain other details in processing of these manuscripts for publication erve comment, for certain procedures are required an authorized history not necessary in volumes ited under civilian auspices.

'or one thing, when the final manuscript is read, it st be decided whether any agency of the govern- nt in addition to the Medical Department has suffi- nt interest in, or association with, the particular ume to require clearance of it. The Public Informa- n Office must clear all manuscripts for security. This chiefly a formality in the clinical volumes but not he administrative volumes, the preparation of which uires the use of a considerable amount of material t is still classified.

The final step in the processing of a volume of the tory is its submission to the Government Printing ice through the Office of the Adjutant General. The ter office has the authority to pass upon and to ap- ove, or withhold approval from, all matter published the Army. Illustrations are its particular concern. en when that office is sympathetic, as it has gen- lly been since the special problems of the medical tory have been brought to its attention, this step l means a minimum delay of four to six weeks. When once the manuscripts reach the Government nting Office, production processes are the same, in ence, as they are in any commercially printed book.

Advisory Editorial Boards

It is regrettable that, in the planning for the history World War II, attention was not paid to the editorial ard which existed in World War I. It was not utilized wisely as it might have been, but it was appointed omptly and it served well.

This board was appointed by the Surgeon General January, 1919. It consisted of 28 medical officers, men of wide experience in the Regular Army Med- l Corps and the Reserve Corps, and all outstanding their several specialties. The board was too large to really functional. At the first meeting, in the fall of 19, practically all of the members were present, but ere were no other full meetings, because, ironically, nen it was practical to hold meetings they were not cessary, and when they were necessary they were t practical because of demobilization of Reserve ficers and changes of assignment of Regular Medical orps Officers. Additional meetings were therefore tirely informal. On the other hand, even though the echanism of their formal use proved too compli- ated, collectively and individually the members of is board rendered signal service.

The first advisory editorial board of World War II as open to the same objections as the advisory edi- orial board of World War I. It was appointed in April, 946, and it convened promptly. Its distinguished nembership represented the Medical Corps of the rmy, medical educational personnel, and editors of nedical publications. At the first meeting the general plan of the history was approved and advisory services were arranged for. As time passed, however, it became evident that no single board could cover the whole field of the history, and eventually—far too late—advisory boards were appointed in the various special fields, as follows:

The Advisory Editorial Board on the History of Preventive Medicine, appointed in 1948, was formerly under the chairmanship of the late Brig. Gen. James S. Simmons, M. C., U. S. Army (Ret.). It is now headed by Brig. Gen. Stanhope Bayne-Jones, M. C., Army of the United States (Ret.). The work on this series is being done under a contract with the Medical College of Virginia at Richmond, under the editorial direction of Dr. Ebbe C. Hoff, professor of neurological science at that institution.

The Advisory Editorial Board on the History of Internal Medicine, appointed in 1952, is under the chairmanship of Dr. Garfield G. Duncan, clinical professor of medicine, Jefferson Medical College, Philadelphia. The work on this series is being done under a contract with this school, under the editorial direction of Dr. W. Paul Havens, associate professor of clinical microbiology.

The Advisory Editorial Board on the History of Surgery, appointed in 1953, was formerly under the chairmanship of the late Brig. Gen. Fred W. Rankin, M. C., Army of the United States (Ret.). It is now headed by Dr. Michael E. Debakey, professor of surgery and chairman of the department, Baylor University College of Medicine, in Houston, Texas. The work is being done under a contract with the Tulane University of Louisiana School of Medicine, at which Dr. DeBakey was formerly associate professor of surgery.

The Advisory Editorial Board on the History of Training, appointed in 1956, is headed by Major Gen. Paul R. Hawley, M. C., U. S. Army (Ret.), formerly Theater Chief Surgeon, European Theater of Operations. Its entire membership consists of Medical Corps officers who were intimately associated with all phases of the training program during World War II.

Boards for the volumes on radiology and neuropsychiatry will be appointed later.

The most important function of all of these advisory boards is to expedite the publication of the history. Their formal meetings have been of great value, but informal contacts have been even more useful. It is often of greater and more immediate help to be able to pick up the telephone, speak to an authority in a special field, tell him the problem, and receive the answer, positive, negative, or merely advisory, with no loss of time. Most of the members of these boards were in service during the war years, many of them for the entire period. They represent the happy combination of specialized medical knowledge and medicomilitary experience required for this work. They have given freely and generously of their time, and they have been of incalculable service to the history.

In this same connection, it is appropriate to thank the authors and editors of these volumes, who have given their time and effort without remuneration to this work. Particular gratitude is due to those who bore the brunt of the inadvertent false starts, misdirected efforts, and other errors which were made in the first years of this project and because of which some of them have had to attack their material a number of times. Many of them have had every reason to be resentful, but they have forgotten their own rights in the interest of doing this job and doing it well.

The Surgeon General of the U. S. Army has played the chief role in all recorded histories of the Army Medical Department. It was the Surgeon General of the Civil War, General Hammond, who had the percipience to start preparations for the history of that conflict only a year after it began. It was the Surgeon General of World War I, General Gorgas, who set up preparations for the history of that war only a few months after the United States had entered it. It was General Magee, then the Surgeon General, who in 1941 established the Historical Division in his office while the United States was still outside of the conflict in World War II. His successors have continued his work. In my own term of office, I have had the warm support and encouragement of Gen. S. B. Hays, the present Surgeon General, his predecessor, Gen. George E. Armstrong, their deputies, and other key members of their staffs, as well as the personnel of various agencies of this Office. It is not an idle phrase to say that the history of the U. S. Army Medical Department in World War II is prepared and published under the direction of the Surgeon General.

Costs

The volumes of the World War I medical history were prepared and published between 1919 and 1929. It is completely unrealistic to relate the cost of those volumes to those which comprise the history of World War II but the comparison has its interesting aspects.

The history of World War II, as would be expected, is a far more ambitious undertaking than the history of World War I. The cost of living has advanced enormously since 1929, and production costs have climbed along with it. Personal remuneration has also increased enormously, although, as already pointed out, most of the clinical manuscripts have been prepared by authors who received no remuneration for their services and who have not always received recompense for their expenditures for secretarial help and other items. Also to be taken into consideration are the false starts and misdirected efforts which General Weed so frankly reported in his *apologia pro historia sua* and which, regrettably, have also occurred in the present project.

The original appropriation for the medical history of World War I, for $50,000 in the fiscal year 1921, was accompanied by the entirely unrealistic restriction that the total cost must not exceed $150,000. Congress promptly removed this restriction, and the total cost, including salaries of personnel, was eventually $576,991.71.[1] After the first few volumes had been published, it was thought that publication costs could be kept to an average of $10,000 per volume, b the end of the task, the average for all volumes almost $13,000. If two volumes are excluded w presented special typographic difficulties, the ave cost per volume was about $11,450, about 14 excess of the working figure of $10,000. As the pr neared its conclusion, some volumes had to be r smaller than had been planned in order to keep wi the financial limits set. Costs increased, even in t days, in an incredibly short time.

Total figures for the World War II history are yet, of course, available, but it is interesting to obs that the unit cost of production has varied from $12 for the first clinical volume, which was printed on coated stock, to $4.18 and $3.84 (estimated), resp tively, for the last two volumes, which were produ under competent editorial supervision and printed fine coated stock. It is doubtful that these costs be reduced in future volumes. The clinical volu particularly, are expensive. They must be printed o high grade of paper if the detail of illustrations is be properly brought out. The economy in that resp practiced in the earlier volumes was an error wh will not occur again. This mistake, together with err in reduction, seriously mars the appearance of t volume on hand surgery.

The history of the U. S. Army Medical Departm in World War II has cost a great deal of mone date, and it is going to cost a great deal more b it is completed. We owe it to the taxpayers of t country, among whom we are all represented, to k the costs down as far as is consistent with the cont and format required to produce quality work. W one considers the huge sums eventually involved in preparation and publication of a massive histor is incumbent upon all concerned to put forth th best efforts to make it the best work possible.

Current Status of the History

The volumes that make up the series entitled "Me cal Department, United States Army in World W II," are part of a total series of about 125 volu dealing with all aspects of the war in all theater which it was fought. These volumes, in contrast Samuel Eliot Morison's history of the Navy, which frequently described as "unofficially official," constit the official history of the Army. Eighty military v umes are to be published by the Office of the Chief Military History, U. S. Army, under the general edit ship, as already noted, of Kent Roberts Greenfield

The number of volumes in the Medical Departme series, like the number planned in the military ser has varied from time to time. The present plann envisages about 45. We have avoided, in all but o of our groups (preventive medicine), an error th plagued the producers of the history of World War We have not numbered our volumes, a practice whi is feasible only if all the material is on hand befo publication of anything is undertaken. Histories a not thus written.

Seneral Weed said, rather bitterly, that in the World ır I series, because volume XV was published first, production of 14 other volumes was required. As tters worked out, it proved necessary to publish even larger number, because some material spilled ɜr its limits and these volumes had to be published two parts each. Then, at the last minute, the au- ɪrs of a planned volume on radiology defaulted, and ʼolume on pathology, which had been deleted, had be hurriedly prepared to take its place because ɜre had to be a volume XIV. The planning for, and ɜrefore the number of, volumes in the World War II tory have varied from time to time, and it is well leed that the World War I plan was not followed, ɜ difficulties being sufficiently numerous without ding this one.

BLE 1.—*Medical Department, United States Army in World War II: Volumes Published*[*]

Book Series	1952	1955	1956	Total
ninistrative	...	...	1	1
ɜrnal Medicine	...	...	...	...
.ropsychiatry	...	...	...	...
ventive Medicine	...	2	...	2
gery	1	2	2	5
.cellaneous	...	1	...	1

By calendar year. No volumes were published between 1946 and 1951 and ıe were published in 1953 and 1954.

Every conceivable effort is now being made in the ;storical Unit, consistent with personnel and funds ailable, to eliminate bottlenecks and concentrate ɪon completing the long-overdue history of the med- ıl effort in World War II. In July, 1954, there was ailable a large amount of material that was com- ɜted or that could easily be completed. Some of it ıs physically in the Historical Unit. Some of it was ıll in the hands of authors and editors, who, under- ındably, were making no effort to move it because thing had happened to material already submitted, me of it four to seven years earlier.

:The simple military tactic was employed of breaking ·rough at the weakest point; that is, all the effort was ncentrated upon the volumes nearest completion, ther than dispersing the rather limited resources of e Historical Unit over a great many volumes. This ɔlicy has paid off, not only in volumes published :able 1) and in press and being prepared for publica- on (table 2) but in the changed attitude of all con- ɜrned in this work.

Volumes of the medical history of World War II ıblished to date include the following: In the pre- ɜntive medicine series, "Personal Health Measures and nmunization" and "Environmental Hygiene," both in ɔ55. In the administrative (technical) series, "Hos- italization and Evacuation, Zone of Interior," in 1956. In the surgical series, "The Physiologic Effects of Vounds," in 1952; "Vascular Surgery," in 1955; "Hand urgery," in 1955; "General Surgery, Volume II" (vol- me I will appear later), in 1956; and "Orthopedic urgery in the European Theater of Operations," also ı 1956.

In the miscellaneous series, "Dental Service in World War II," in 1955.

Two volumes are now in press, "Orthopedic Surgery in the Mediterranean Theater of Operations" and "Ophthalmology and Otolaryngology," both in the surgical series. In preparation for press are two volumes in the preventive medicine series, two volumes in the internal medicine series, one of the two neurosurgical volumes in the surgical series, and "Cold Injury, Ground Type," in the miscellaneous series.

Utilization of the World War II History

Colonel Goddard had the excellent idea of trying to find out what useful purpose the medical history of World War II might serve by investigating what purpose the history of World War I had served.[3] Medical officers performing administrative functions doubted that the clinical volumes would offer much of value, partly because of the delay in getting them into print and partly because all significant items of medical progress achieved during the war were already available in the periodical literature. In 1951, 161 questionnaires were sent out to the libraries of foundations, government agencies, colleges and universities, municipalities, professional schools, and professional societies, both in the United States and overseas, which had been given complete sets of the history of World War I. The (few) medical libraries which had received these sets were also questioned. The great majority of the 110 questionnaires which were returned indicated that through the years almost all the calls had been for the clinical volumes and that the interest in the World War II history would be chiefly in these same volumes. The rather naïve astonishment of those who prepared and analyzed these questionnaires indicated that the nature of the replies was quite unexpected.

TABLE 2.—*Medical Department, United States Army in World War II: Current Status of Volumes*

	Administrative	Internal Medicine	Neuropsychiatry	Preventive Medicine	Surgery	Miscellaneous	Total
Scheduled	8	4	2	9	15	8	46
Published	1	...	...	2	5	1	9
In press	...	...	...	...	2	...	2
Being processed	...	2	...	2	1	1	6
Being revised	2	...	...	...	...	...	2
In preparation	2	2	...	5	4	3	16
Planning stage	1	...	...	...	1	2	4
No action	2	...	2	...	2	1	7

This same question arose at the April, 1956, meeting of the Advisory Editorial Board for Surgery, in connection with the neurosurgical volumes.[7] These volumes, sent to the Historical Division in June, 1947, had never been published, and the authors of the various chapters, despairing of any official action, had published their own material. The editors of the volumes, who had every reason to be pessimistic in the light of their past experiences, therefore proposed to limit the resurrected material to a brief account of certain administrative problems and an equally brief account of the evolution of methods and techniques. The idea was not well received by the board. The sense of the meeting was that, as a matter of convenience and practical usefulness, quite aside from its historical value, the original material should be published as part of the official history. The editors have acquiesced with good grace, and the neurosurgical material is being reconstituted on the original basis.

The title of the World War I history, "The Medical Department of the U. S. Army in the World War," was adopted after much deliberation. The title first suggested, "The Medical and Surgical History of the World War," was discarded for a number of reasons, but the changed title, wrote General Weed, was a mistake, for it "smacks of meticulosity and . . . the reasoning which led to its adoption was faulty."

Particularly interesting is his statement that the desire to reach the widest possible range of readers would have been facilitated by the term history in the title and was frustrated by dropping it. He mentioned that the most widely circulated medical journal in the United States (presumably The Journal of the American Medical Association) described volume I of the World War I history in a book notice as the "Report of the Surgeon General." As a result, he continued, many potential readers, such as Medical Reserve officers no longer in service, remained permanently in ignorance of the existence of the history of the Medical Department in World War I.

We paid for this ignorance in World War II, as DeBakey[8] pointed out in his Ether Day address at Massachusetts General Hospital in 1946 and as many of the authors of the World War II history as well as others have attested. The ignorance was entirely real. One author read with avid interest the introductory section which had been provided for the chapter he had prepared for the history of World War II and which dealt with the story of his specialty in World War I. He inquired where on earth it had come from. It had come directly from the official history of the first World War. In shining contrast is the story of how Col. (later Major Gen.) Guy B. Denit, M. C., went ashore in North Africa carrying as an essential part of his impedimenta certain volumes of the history of the Medical Department in World War I.

The volumes of the history of the Civil War were published in the "family Bible" size. The volumes of the history of World War I were published in the smaller royal octavo size, but they did not escape what General Weed well termed "ponderosity." Four of them, he noted, weighed an average of 8 lb. each. These are reference works, it is true, but, as he said, this is far too heavy for the "dictates of convenience." Volumes of this size, from 650 to 1,000 pages each, printed on coated stock, tax the lasting qualities of their binding, and their size actually interferes with their use. Certainly they do not lend themselves to being carried ashore on D-Day.

The volumes of the history of World War II more readily handled (the average weight of the recently published volumes is something under 4 each), even though they do not meet the desire— laudable but not very practical desire—of one of t editors, who visualized something small enough carry in his coat pocket. These volumes are, howe small enough to be readily usable, several at a t if necessary.

Distribution.—If we are to avoid the limited usef ness of the volumes of the history of World War we must make the volumes of World War II m generally available. This means that their existen must be publicized. There must be careful distribut of the copies which are given to organizations and stitutions, as well as legitimate publicity for the cop which are for sale by the Superintendent of Do ments, U. S. Government Printing Office, Washingt D. C., at the remarkably low price, incidentally, about $4 each.

The distribution of the Civil War history was e tirely individual. In 1869, Congress authorized t printing of 5,000 copies, 1,000 to go to the Sena 3,000 to the House, and 1,000 to the Surgeon Gener for distribution. The demand was great, and a seco printing in the same number was authorized and si larly distributed in 1875. As a result of this system, t sets, for the most part, went into private librar They were available to relatively few readers, partic larly to those who might have benefited most by the and the expressed objective of all the toil and troub that had gone into their preparation was not realiz At the present time, when the demand for them increasing, these volumes, as well as the volumes the World War I history, are becoming scarcer more difficult to obtain.

When the first volumes of the World War I hist were published, the number printed, 3,000, was c sidered ample to supply all stations of the Army, important public libraries in the United States, all similar libraries in leading foreign nations. Th first volumes were electroplated, but this practice later discontinued, in the name of economy, thou as a matter of fact the saving thus effected was im diately cancelled out by a rise in the cost of printi

The distribution list of the World War II histor represents a serious endeavor to meet Hanson Baldwin's comment on the military volumes, that p sons must be found to read these books as well funds to pay for their production. The medical v umes are being sent, without charge, to the librar of all medical schools in the United States and Cana the most important medical journals in this coun and abroad; all Army installations; other governme agencies; selected heads of medical services in cou tries with which we are allied; and certain membe of Congress, upon request.

The copies which go to medical schools are acco panied by a covering letter from the Surgeon Gener in which it is pointed out that these books are of re ortance to the young men who must, almost in- tably, be prepared to serve in the Medical Corps of ne one of the armed services when they finish their dical course. It is also suggested in this letter that se volumes could play a useful part in the Medical ucation for National Defense (MEND) program w operative in some 25 medical schools, which has its purpose the teaching of the principles of military d disaster medicine.

n his covering letter to the editors of medical jour- s, the Surgeon General has pointed out that the rent value of these volumes is quite as great as ir historical interest. They contain the essential dical facts which must be our bulwark against fu- e disaster. In the next war, if it should come, there ll not be months of time available to mobilize and in troops. There will be no time for medical officers wly inducted into the Army Medical Corps to go to fessional schools to learn surgical techniques or to to staff schools to learn medicomilitary procedures. e medical profession itself will not be sufficient to e for casualties. Dentists, veterinarians, nurses, even technicians, will all be obliged to extend their ac- ities beyond their immediate fields of training. ese books can show them the way.

In 1948, in a perceptive review of a volume of the litary series of World War II histories dealing with Army Ground Forces, Hanson W. Baldwin wrote:[9]

> e approach is in the best tradition of the historian: "Get the th; let the chips fall where they may." . . . The inescapable pression of these . . . volumes is one of almost indescribable nfusion in our attempts to raise an army, of constant changes plan, of a babel of many voices . . . of the lack of a clear, dered staff procedure and policy. Yet—and this is the diffi- lty of the organizational plan of the Army's history—I have und it difficult to trace down the reasons for this situation to eir sources . . . I have, therefore, a suggestion to make to the storical division and the Army General Staff. Someone—obably not a historian . . . should go through these volumes . and extract from each for training purposes the major mis- kes made and lessons learned in World War II in training, ganization, administration, planning, and leadership. There is nsiderable danger—and some evidence—that our present ex- nding Army is making some of the World War II mistakes l over again. The history project (aside from its other great lues) will have more than paid its way if the lessons of the st can be utilized in the present. They are all here . . . but ey will never be learned from these volumes as they stand. meone must cull them, sharpen them, arrange them, simplify em—and, particularly, shorten them. So doing, we might save me and effort—and lives.

I was not familiar with Baldwin's proposal when, bout a year ago, I began to urge that precisely this ind of action should be taken with the volumes of le medical history when the whole project is com- leted. It is the business of the Historical Unit and its ersonnel to provide the facts of Medical Department ctivities in World War II. Their evaluation and inter- retation are the business of a later day. The review nd analysis proposed should be made by as represen- ative and as high-powered a board as can be assem- led. Every branch of the Army Medical Service hould be represented on it. This is not a task for historians. It is a task for experts in all fields of military medicine. In short, I hope that the volumes of the history of the Medical Department in World War II will eventually be subjected to exactly the same analytical process as Baldwin has advocated for the strictly military volumes. "So doing," as he says, "we might save time and effort—and lives."

In 1946, in an (unpublished) address before the Society of Medical Consultants to the Armed Forces, Dr. R. Glen Spurling, editor, with Dr. Barnes Woodhall, of the neurosurgical volumes of the history, wrote as follows:

> We are now engaged in the preparation of the history of the Medical Department in World War II. I very much hope that we shall make it a frank record of our mistakes as well as of our achievements, of the difficulties under which we labored and of possible solutions for them. . . . How frankly and fully [these volumes] are written will determine how many mistakes we can avoid if we are ever again put to the test.
>
> I passionately hope that the need for mobilizing civilian components of the Army Medical Corps will never again come in our lifetime, or in the lifetime of our children. But if the unhappy duty of mobilizing for a third World War should fall upon our own or upon some succeeding generation, that task will be easier if the record of the past is written so plainly that it cannot be misunderstood.

As Editor-in-Chief of the history of the U. S. Army Medical Department in World War II, this is exactly what I am trying to accomplish.

Addendum

Since this report was prepared, "Orthopedic Surgery in the Mediterranean Theater of Operations" has been published in the surgical series.

The opinions expressed are my own and do not necessarily express those of the Surgeon General, U. S. Army.

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DIAPER RASH

FOR centuries skin eruptions in the diaper region have plagued infants and those responsible for their care. Kaessler[1] states that few infants escape this condition entirely, and Benson and co-workers[2] believe that in recent years the incidence of persistent diaper rash has increased. The term is somewhat of a misnomer, because in most cases the diaper itself is not the cause of the rash; but it is a convenient term for a group of unrelated conditions and is not likely to be abandoned. The commonest cause is the breaking down of urea with the resulting formation of ammonia. Bacterium ammoniagenes is the organism most commonly responsible for this. Other rashes in this region that may occur independently concomitantly are miliaria rubra or prickly heat, thrush, excoriation associated with diarrhea, intertrigo, seborrheic dermatitis, and allergy.[3] A severe rash may be complicated by secondary infection and ulceration. Diaper rash in general is aggravated by lack of cleanliness and maceration of the skin.

The treatment varies with the cause to be removed. As an aid to healing, the diaper area should be kept warm and dry. In severe cases this may necessitate placing the baby under an electric cradle, allowing him to lie on one or more spread-out diapers. Swift[4] advocates the use of hydrocortisone ointment followed by zinc oxide ointment or zinc oxide (Lassar's) paste. Kahan and co-workers[3] state that the ideal preparation for local application should be moisture-repellent, keratolytic, and bactericidal. They used an emulsion containing 3% silicone, which is moisture repellent; 0.2% allantoin (glyoxyldiureid), which is keratolytic; and 0.25% hexachlorophene, which is bactericidal. All three principal ingredients have the advantage of being nonirritating and nonsensitizing. The mothers were instructed to (1) make no change in the general care of the infant, (2) avoid the use of oils, lotions, ointments, or powder on the skin but apply the emulsion two or three times a day instead, (3) clean the diaper area with lukewarm water after urination or defecation, and (4) report any aggravation or untoward reaction. With this regimen they obtained excellent results. Kaessler[1] used a similar preparation in powdered form and obtained a clearing of the rash in 6 to 28 days. The results in a control series using ordinary baby talcum powder were not as good. Swift found treatment with silicone preparation effective but no better than that with zinc oxide ointment or zinc oxide paste. The silicones have the disadvantage of being more expensive.

It has been said that the practice of pediatrics should be predominantly preventive, and indeed much can be done to prevent diaper rash. Changing diapers as soon as possible after they become wet or soiled prevents maceration of the skin and the formation of ammonia. Because plastic or rubber pants have the opposite effect, their use should be limited to brief social occasions when prompt changing would be inconvenient. Rubber pants should never be left on throughout the night. Much attention has been given to the proper laundering of diapers. Benson and co-workers compared the results of home laundering with those of commercial laundering. The technique used in the home on the average consisted of soaking in cold water, washing in hot suds, and triple rinsing in water. The technique used in commercial laundering was much more elaborate, consisting of three initial rinses (warm and hot), two soapings at 180 F, bleaching, three rinses in hot water followed by a rinse in methylbenzethonium and another in zinc silicofluoride, the total process taking over one hour. Bacteriological and chemical testing showed that commercial laundering was much more effective in removing and inhibiting growth of ammonia-forming bacteria and in removing irritant detergents. Brown and Wilson[5] studied the effectiveness of various preparations used in diaper rinses and found that 3% phenylmercuric acetate was the best antiseptic: mehylbenzethonium and RH 3104, both quaternary ammonia compounds, effectively inactivated urease so that the decomposition of urea to ammonia was inhibited, and zinc silicofluoride enhanced the inactivation of urease by the quaternary compounds. They concluded that the best results required treatment of diapers with a combination of bactericide, a urease inhibitor, and zinc silicofluoride.

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Although commercial laundering is not essential to the prevention of diaper rash, the nearer a home laundering procedure can approximate that of commercial laundries the better the protection. It is doubtful that many homes would find the elaborate technique used in commercial laundries practicable. Finally, it should be emphasized that preventive measures must be continued as long as diapers are worn.

THE JOHN J. ABEL CENTENNIAL

The American Society of Pharmacology and Experimental Therapeutics commemorated the centennial of the distinguished scientist John Jacob Abel on September 5, 1957, in special ceremonies at the Johns Hopkins medical institutions in Baltimore. His career tells a story of how scientific medicine develops and in principle is not unlike the history of other outstanding figures in medicine. Such men are a source of inspiration for those who may wonder if the long road in medicine and research is worth following.

Dr. Abel, who was born near Cleveland on May 19, 1857, received his Ph.B. degree from the University of Michigan in 1883, his college education being interrupted for a three-year period when he was principal of the high school and later superintendent of the public schools at La Porte, Ind. After graduation, he spent a year in the department of biology at Johns Hopkins University, after which he went abroad for seven years studying medicine and doing postgraduate work under such celebrated teachers as Ludwig, Von Frey, His, Strümpell, Kussmaul, Von Recklinghausen, Naunyn, Hoppe-Seyler, Von Nencki, and Schmiedeberg. It was Schmiedeberg, long regarded as the father of modern pharmacology, who stimulated Abel's interest in pharmacological research, particularly in its chemical aspects, and it was on Schmiedeberg's recommendation that Dr. Abel was offered the first full-time professorship of pharmacology in the United States, founded in 1890, at the University of Michigan. In 1893, Dr. Abel left Michigan to assume the chair in pharmacology at the newly organized medical school of the Johns Hopkins University, a position he retained until his retirement in 1932. From then, until his death in 1938, he served as the director of endocrinological research at the university.

Prior to Dr. Abel's appointment at the University of Michigan, materia medica and therapeutics were taught by physicians engaged in private practice. Dr. Abel, however, introduced Schmiedeberg's methods of instruction, which included lectures, demonstrations, and quizzes and instituted the use of student experiments. His prodigious energy and unbounded enthusiasm exerted a strong influence on both his students and assistants, many of whom advanced to important positions in medicine or the medical sciences.

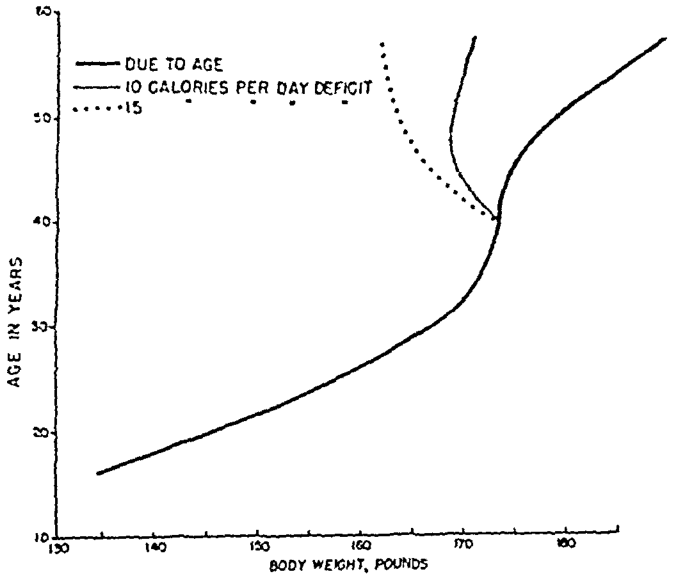
Dr. Abel's research activities covered a wide range of subjects, from his earliest researches on the "molecular weight of cholic acid, cholesterol and hydrobilirubin" to the studies on the mode of action of tetanus antitoxin, undertaken after his retirement from active teaching. Possibly his best-known works were the isolation of the benzyl derivative of epinephrine, the active principle of the adrenal medulla, in 1897, and the preparation of crystalline insulin in 1926. These studies, and his extensive work on the purification of the active principles of the posterior lobe of the pituitary gland, were facilitated by the broad training he had received in Europe, where he first came to appreciate the great role that chemistry would play in the future development of scientific medicine. His prophetic instinct was also illustrated by his development, in 1913, of an "artificial kidney," capable of removing dialyzable substances from the blood of living animals by circulating it through a series of celloidin tubes surrounded by saline solution and by his introduction during the year 1921-1922 of a course in biophysics in the medical school.

Dr. Abel's contributions to the medical sciences include also the founding of several scientific journals and societies. In 1895, he suggested to President Gilman of the Johns Hopkins University the need for an American journal, covering the field of experimental medicine, and the following year, with Gilman's encouragement, the medical faculty founded the *Journal of Experimental Medicine*. The success of this journal prompted Abel to initiate the steps that led to the launching of the *Journal of Biological Chemistry* in 1905 and the *Journal of Pharmacology and Experimental Therapeutics* in 1909. On December 26, 1906, Dr. Abel called a meeting of biological chemists in New York, which led to the founding of the American Society of Biological Chemists, and, in 1909, the American Society of Pharmacology and Experimental Therapeutics was organized with Abel as its first president.

Dr. Abel's contributions to the development of basic medical science in America were truly outstanding, and his influence on contemporary workers was lasting and profound. Practicing physicians may well join with their academic colleagues in paying homage to this great scientist and teacher.

further that, since the advantages of overweight in the adolescent and early adult years has been replaced by prevention of infectious diseases and improved therapeusis, at no time in one's life span should obesity be tolerated.

In the United States the National Research Council's Food and Nutrition Board has had a tremendous impact on the thinking of the teachers in the field of nutrition. Their table of recommended food allowances is used as a yardstick for the measurement of the adequacy of the diet. There is no question that it has served a useful function and has brought about an upgrading in the general nutritional status of the people of this country. One can question whether their caloric allowances for the 65-year-old group and older are not too generous and conducive to the production of obesity. Lyons and Trulson[2] report a survey of 100 men and women over 65 years of age living in Boston. They found that 35% of the men and 52% of the women consumed 100% of the National Research Council caloric allowances –2,600 and 1,800 calories respectively; 48% of the men and 57% of the women were 10% or more above their desirable weight. This would indicate that for this group the National Research Council's caloric allowances are too high.



Increase in body weight on constant intake, 2,800 calories per day, and constant expenditure, correcting for decreased metabolism due to age. (U. S. Army photograph.)

The diet has been implicated in the genesis of atherosclerosis. This discussion will not go into the details of the arguments pro and con. No doubt, in time, atherosclerosis will be proved to have a relationship to metabolic factors. Whether these are due to faulty dietary habits and can be reversed by changes in the diet is still a very open question. There is at present no evidence which calls forth a recommendation for drastic changes in the present dietary regimen to combat atherosclerosis. A diet which will bring about and maintain optimum nutrition can be achieved by the consumption of the normal variety of foods in amounts sufficient to maintain the desirable weight.

Chronic disease states have their influence on nutritional requirements, and meals must be planned accordingly to supply the required amount of nutrients. The physician who prescribes diet therapy as part of the treatment in the aging population must make certain that the therapeutic diet not only is nutritionally adequate on paper but is actually consumed by the patient. Low-sodium diets, frequently prescribed for the aged, are particularly anorexigenic, and, if careful attention is not paid to the adequacy of the consumption, secondary malnutrition occurs, particularly with respect t protein and some of members of the vitamin complex. Paralysis agitans (Parkinson's disease may make it very difficult for the patient to fee himself. Concentrated foods in liquid mixtures ma be necessary as supplements between meals. Gastr intestinal disturbances, both functional and organi frequently lead to limitation of food choice. Th therapeutic diets prescribed for gout and diabet mellitus are more easily interpreted into good fo intakes than some of the others.

Limitation of physical activity because of my cardial disease and circulatory insufficiency a arthritis and other joint difficulties should call a compensating decrease in caloric intake, otherw weight gain is inevitable. Added body pounda causes a further load on the circulation and weig bearing joints. The precipitation of anginal pain a full meal discourages many from eating a meal. Personality changes and the negativism quently associated with cerebral arterioscler have a direct bearing on appetite and food consu tion. Socioeconomic factors must be investiga These latter, too, can determine to a large ex the food intake.

Look carefully for dental or local oral lesion a cause of poor eating. Ill-fitting dentures and gums are a real deterrent. Many functional gas intestinal upsets result from foods that have been masticated. Pay attention to the mechan state of the food as well as its nutritional cont

Basically, the nutritional requirements for aged are essentially the same as for the you adults. With the exception of recognition of decreasing calorie requirements, one need not the light of present knowledge, alter the dietary pattern. One must recognize that the metabolic status of the aged is the end-result of previous experiences and that optimum nutrition must be maintained throughout life.

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MEDICINE AND THE LAW

COMPLAINT AGAINST A PHYSICIAN SUBMITTED TO A MEDICAL SOCIETY—BASIS FOR LIBEL ACTION BY THE PHYSICIAN

A patient submitted a complaint in a letter to the ew York County Medical Society which in part ad as follows: "It was guaranteed to me by the ysician, who is the subject of this correspondence, at the scar which is on my left shoulder would isappear, except for a thin and barely visible line ter the performance of the operation. Further, at this healing process would take only about ur months. Since the date of the operation, no ange whatsoever has taken place, nor has the ngth or ugliness of the scar in any way diminhed.

"The consultation which took place on Saturday etween Dr........................ and myself, was both diseartening and, I believe, unethical. Dr.................... eadily admitted to the operation's failure, indicatg that the scar would not disappear and that he id not perform a proper operation. When asked y me what he proposed doing to rectify this situaion, he suggested another operation at additional ost." The letter ended with a request for "assistnce and guidance."

One of the Principles of Medical Ethics of the ledical Society of the State of New York, of which he physician was a member, states, in part, that the promise of medical care or boasting of cares r extraordinary skill and success is unethical."

The physician and his witnesses readily admitted hat no scar can be completely eliminated and, if ncised, must of necessity be substituted by another car. The Grievance Committee of the Medical Society rejected the patient's complaint on the basis of the physician's assurance that no guarantee or promise of a satisfactory outcome had been made by him and that the procedure which he used in the operation was standard practice.

The physician then sued the patient for libel for having submitted this letter of complaint to the medical society. The court concluded "that a guarantee of removal and reduction of the scar to that of a thin and barely visible line would be reprehensible, deceitful and unethical. To falsely accuse a surgeon of making such a definitive guarantee of recovery is to impugn his integrity and professional standing as a surgeon, amounting to libel per se."

The court said that the letter, even though submitted in confidence, could be the basis for a libel action, "for it is enough that it be public and made known to persons other than the parties, even though they be members of an official body or a select and private group of professionals." The court also stated that it would be contrary to public policy to hold that the physician "being a member of the Society and thus bound by its principles and rulings must be presumed to have waived his legal rights."

Nevertheless the court dismissed this libel action as it found that the patient's assertions in her letter of complaint to the medical society were true and were made without malice.—*Kantrowitz v. Candelario, 163 N.Y.S. 2d 297, Supreme Court, Trial Term., Kings County, Part IV., May 17, 1957.*

CONFIDENTIAL COMMUNICATIONS AND RECORDS

This is the third in a series of six articles dealing with the necessity for and proper format of certain medicolegal forms. The subjects to be covered are (1) consent to operations and other medical procedures; (2) patient's right to privacy; (3) confidential communications and records; (4) artificial insemination; (5) the physician-patient relationship; and (6) autopsy.

This material has been prepared and will be published in book form by the Law Department of the American Medical Association under the title "Medicolegal Forms with Legal Analysis." The book will include extensive legal citations and a substantial number of additional forms which have not been included in this series of articles.—Ed.

The relation between a physician and his patient is an extremely confidential one. The patient should feel free to make a full disclosure of facts to his physician, in order that the physician may most effectively render his services, and the patient should be free to make this disclosure with the knowledge that the physician will respect the confidential nature of the communications. It is a breach of professional ethics for the physician to reveal the confidential communications of his patients without the express consent of the patient unless required by law, as in the case of communicable diseases. The betrayal of a patient's confidence may also be grounds for revocation of the physician's license. The physician should, therefore, obtain the express written consent of the patient before releasing confidential information.

Confidential communications between physician and patient have *the statutory status of privileged* communications in some states. In states where communications have this status, the physician may not testify *in a judicial or administrative proceeding* as to information obtained as a result of the physician-patient relationship.

The privilege also extends to hospital records insofar as they tend to disclose what the physician learned in the course of treatment. Generally, it has been held that, where a physician is employed by an insurance company or other adverse party to examine a claimant, with no contemplation of any treatment, the information thus acquired is not privileged and the physician may testify as to such information.

In order for privilege to apply, it is *not necessary* that any treatment shall actually have been given; all that is necessary is that the information shall have been gained for the purpose of aiding in treatment.

The communication is privileged if it is made in the presence of a third person who is aiding the physician or who is necessary as a means of communication between physician and patient. But, if the communication is made in the presence of a third person, who is not assisting the physician and *who is not necessary* as a means of communication between physician and patient, it is not privileged. It has been held in some states that, in such a situation, only the third person, but not the doctor, could testify as to the communications, while in other states it has been held that both the doctor and the third person can testify as to the communications. If the communication is made in the presence of a third person whose character is such that the communication is nonprivileged, the patient cannot be compelled to testify as to the communication.

The privilege belongs not to the physician but to the patient, who may waive it. The patient's bringing of a professional liability action against the physician may constitute a waiver of the privilege. The privilege may may also be waived if the patient testifies as to the communications or if he calls the physician as a witness.

Fundamentally, the physician-patient privilege, which exists in many jurisdictions in various forms, is a limited right of exclusion of evidence in a judicial or administrative proceeding. Ordinarily, it does not present any issue of legal right of recovery for violation of the privilege. In seeking to recover against a physician for the alleged improper disclosure of information, it appears that the patient's basis for recovery, if any, would depend upon his ability to establish a breach of his right of privacy. This is an area of law which is still in the process of development.

FORM 1.—*Authorization for Disclosure of Information to Examining Physician*

I authorize Dr. .... to

disclose complete information to..
concerning the results of a physical examination of the

undersigned made or to be *made on*..

19........, and to testify, without limitation, as to all findings *of said* physical examination, in any legal action or judicial *proceedings* to which I am, or *may* become a party; and I *waive on behalf of myself and any persons who may have an interest in the matter, all provisions of law relating to the* disclosure of information acquired through *said* examination.

Signed ....

Place ....

Date ....

Witness ....

FORM 2.—*Consent to Examination of Physician's Records*

To Dr. ....:

I hereby authorize and request *you to furnish* a copy of

the medical records of ....
(State *name* of patient or "myself")

covering the period from .... 19...

to .... *19*........ or to allow those records to be inspected or copied by ....
I hereby release you from all legal responsibility or liability that may arise from the act I have authorized above.

Signed ....

Date ....

Witness ....

FORM 3.—*Consent to Access to Hospital Records*

To ...., Hospital Superintendent,

.... Hospital.

I hereby authorize you to furnish a copy of the hospital

records of ...., covering the
(State name of patient or "myself")

period from .... 19...... to .... 19...
or to allow those records to be inspected or copied by

.... I hereby release..............................
Hospital and you personally from all legal responsibility or liability that may arise from the act I have authorized above.

Signed ....

Date ....

Witness ....

MEDICAL NEWS

ARIZONA

General Practitioners Meeting in Mesa.—The annual meeting of the Arizona Chapter, American Academy of General Practice, will be held Oct. 12-13 at the Maricopa Inn, Mesa. The program includes the following guest specialists: Dr. Karl O. Van Hagen, clinical professor of neurology, University of Southern California, Los Angeles; Dr. William A. Brewer, surgeon, Phoenix; Dr. Herman W. Lipow, pediatrician, Phoenix; Dr. Samuel G. Blount Jr., director, cardiovascular laboratory, University of Colorado, Denver; Dr. Jack E. Brooks, eye, ear, nose, and throat, Phoenix; Dr. Robert W. Weber, orthopedic surgeon, Tucson; and Dr. William Dock, internal medicine, Palo Alto Clinic, Calif. A $5 fee will be charged for nonmembers. The meeting is approved for postgraduate credit, category I, for members of the academy, and is open to all members of the medical profession. Entertainment includes a banquet Oct. 12 and a golf tournament Oct. 13. A ladies' program is planned. For information write Dr. V. E. Frazier, General Chairman, Arizona Academy of General Practice, 40 South Country Club Drive, Mesa, Ariz.

ARKANSAS

Society News.—The Arkansas Dermatological Society has elected the following officers: Dr. Ray Fulmer, Little Rock, president; Dr. Ellis P. Cope, Little Rock, vice-president; Dr. Calvin Dillaha, Little Rock, secretary; and Dr. Davis W. Goldstein, Fort Smith, program chairman. Plans have been made to form a regional group of dermatologists within a radius of about 400 miles from Little Rock which will hold yearly informal meetings.

CALIFORNIA

Fourth Annual Surgical Symposiums.—The San Francisco Academy of General Practice has announced that the fourth annual surgical symposiums will be held at Fort Miley Veterans Administration Hospital, 42nd Avenue and Clement Street, San Francisco, Tuesdays at 8:00 p. m., Sept. 24, Oct. 1, 8, 15, 22, and 29. The symposiums are under joint sponsorship with the University of California School of Medicine. Practical concepts of surgical technique will be stressed and new advances in surgery discussed. The symposiums are designed to fit the needs of the general practitioner. Dr. Louis Brizzonlara, chief, department of surgery, Fort Miley, will act as moderator, and Dr. Forrest M. Willett, chief, department of medicine, Fort Miley, will be coordinator. For information write Dr. Alex F. Fraser, 3490 20th St., San Francisco 10, Calif.

Society News.—The 1957-1958 officers of the Los Angeles Radiological Society are as follows: president, Dr. Richard A. Kredel, Pasadena; vice-president, Dr. Lewis J. Peha, Beverly Hills; secretary, Dr. Putnam C. Kennedy, Glendale; treasurer, Dr. Robert B. Rickenberg, Los Angeles. The society meets the second Wednesday of September, November, March, April, and June, at the Los Angeles County Medical Association Building. The midwinter radiological conference will be held Feb. 22-23, 1958, at the Biltmore Hotel, Los Angeles.

CONNECTICUT

Personal.—Dr. Franklin S. DuBois, of New Canaan, recently named to the newly created State Board of Mental Health, was elected secretary of the group at an organization meeting in Hartford.

Hospital Anniversary Program.—A scientific meeting will be held in The Hospital of Saint Raphael, New Haven, Oct. 25 as part of a three-day celebration of the 50th anniversary of the hospital. Participants include Dr. Paul di Sant'Agnese, assistant professor of pediatrics, College of Physicians and Surgeons, Columbia University, who will discuss "Cystic Fibrosis of the Pancreas"; Dr. Charles A. Hufnagel, professor of research surgery, Georgetown University School of Medicine, Washington, D. C., speaking on "Selection of Patients and Evaluation of Procedures for Cardiac Surgery"; and Dr. Shields Warren, professor of pathology, Harvard University School of Medicine, Boston, whose subject will be "Radiation and the Human Race." A clinical pathology conference will be part of the afternoon session and will include Drs. Harold Jeghers, chairman, department of medicine, Seton Hall College of Medicine; Mario Stefanini, associate professor of medicine and lecturer in pharmacology, Tufts University Medical School, Boston; Arnold Janzen, radiologist, Hartford; and Robert Nesbit, pathologist, Hospital of St. Raphael.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Exhibits will include those on hypersplenism, cholangiography, heart-lung machine, and electrophoresis.

LOUISIANA

General Practitioners Meeting.—The 11th annual assembly of the *Louisiana Academy of General Practice* will be held Oct. 8-10 at the Frances Hotel, Monroe. The program includes the following topics by out-of-state speakers:

Gallbladder and Duct Disease, Dr. R. L. Sanders, professor of surgery, University of Tennessee, Memphis.
Acute Abdominal Conditions, Dr. Sanders.
External Edometriosis, Dr. William F. Guerriero, clinical associate professor of obstetrics and gynecology, Southwestern Medical School, University of Texas, Dallas.
Newer Aspects in the Management and Diagnosis of Carcinoma of Female Genitalia, Dr. Guerriero.
Urology that the General Practitioner Should Know, Dr. Thomas D. Moore, professor of urological surgery, University of Tennessee.
Interpretation of Pyelograms, Dr. Moore.
Collagen Diseases, Dr. Harry E. Banghart, assistant professor of medicine, Hannemann Medical College, Philadelphia.
Osteoporosis, Dr. Banghart.

At the luncheon Dr. J. P. Culpepper, president, Southern Medical Association, will speak on "The Role of Organized Medicine," and Dr. E. S. Mc- y, chief of preceptorship program, University exas School of Medicine, Galveston, on "The dical Student and the Preceptorship." A dinner- nce will be held Oct. 7. For information write the ouisiana Academy of General Practice, 3420 Canal St., New Orleans 19, La.

MASSACHUSETTS

Hospital News.—The New England Center Hospital, Boston, has announced the establishment of a new department of infectious diseases under the direction of Dr. Louis Weinstein who, in addition to being named chief of the new unit and senior physician at the hospital, has also been appointed professor of medicine at Tufts University School of Medicine. Both the Hospital and the Medical School are part of Boston's New England Medical Center. To accept these appointments, Dr. Weinstein has resigned as chief of the Infectious Diseases Service at Haynes Memorial of the Massachusetts Memorial Hospitals and as associate professor of medicine at Boston University School of Medicine.

Personal.—Dr. James B. Dealy Jr., of Newton, has been appointed by the trustees of Peter Bent Brigham Hospital as radiologist-in-chief, succeeding Dr. Merrill C. Sosman, who has retired after more than 30 years. Dr. Dealy has served as acting radiologist-in-chief, since Dr. Sosman's retirement last July. He is also assistant clinical professor of radiology and acting chairman of the department at Harvard Medical School, Boston.—Dr. John M. Mackenzie, assistant superintendent of the Boston State Hospital and assistant professor of psychiatry, Tufts Medical School, has begun a one-year leave of absence. Under a fellowship training program, Dr. Mackenzie will hold the position of senior instructor at the University of Aberdeen Medical School in Scotland. He will teach third and fifth year undergraduates in the College of Medicine courses in psychodynamics, individual and group therapy, and the application of psychoanalysis to the major mental illnesses.

NEW JERSEY

Society News.—The New Jersey Rheumatism Association has elected the following officers: president, Dr. Irving L. Sperling, Newark; vice-president, Dr. Evelyn Merrick, Orange; treasurer, Dr. Walter R. Edwards, Trenton; and secretary, Dr. William D. Kimler, Haddon Heights.—The Essex County Pathological and Anatomical Society will celebrate its 50th anniversary Nov. 9 in Newark at the Essex House. During the day there will be a clinical-pathological program at the Martland Medical Center and in the evening Dr. Hans Popper, associate professor of pathology, Northwestern University Medical School, Chicago, will give the anniversary address.—The following officers were recently elected to the New Jersey State Gastroenterological Society: Dr. Jacob A. Riese, president; Dr. Ferdinand Weisbrod, vice-president; and Dr. Abraham Friedman, secretary-treasurer.

NEW YORK

Personal.—Dr. Martin A. Seidell, internist and neurologist, has assumed the post of medical director of J. B. Roerig and Company, New York pharmaceutical firm. Dr. Seidell, who practiced for two years at the Mayo Clinic, Rochester, Minn., joined the Roerig division of Chas. Pfizer & Co., Inc., July 15, succeeding Dr. Jerome J. Van Gasse, who has been appointed assistant general manager of Pfizer Laboratories in Brooklyn.—Dr. Charles P. Blunt, a specialist in surgery, has joined the Corning Glass Works medical staff in Corning. Dr. Blunt comes from Rupert, Idaho. Previously he was engaged in general surgery in Lynchburg, Va., from 1950-1952, and at Marion, Va., from 1952-1955.

Hospital News.—At the first reunion of former house officers of the Rochester General Hospital, Sept. 13-14, Dr. Philip Thorek, Chicago, was guest speaker. Mr. James Card, curator of movies at George Eastman House, was the banquet speaker.

Dedicate Health Department Building.—Ceremonies marking the dedication of the new State Health Department office building were held in Albany June 27. State Health Commissioner, Dr. Herman E. Hilleboe, who presided at the dedication ceremonies, introduced Governor Averell Harriman and Dr. LeRoy E. Burney, Surgeon General of the

United States Public Health Service, who were guest speakers. The new building brings together under one roof about 600 State Health Department employees who were previously housed in eight different offices and buildings throughout the city of Albany. Albany Medical College and Hospital, Albany College of Pharmacy, and the Albany Veterans Administration Hospital are nearby. The Hospital Survey and Planning Commission is housed in the building. Constructed of face brick with limestone trim, the building is "E" shaped, is completely air conditioned, and took two years to construct at a cost of $3,180,000. It includes offices of the Water Pollution Control Board and the Air Pollution Control Board. A total of 170,000 square feet of usable floor space is available within the building. The basement floor contains a cafeteria with a seating capacity of 200 people; an auditorium seating 300 people; a photography laboratory and darkroom; an exhibits workshop; and general storage and file rooms. The auditorium is available for meetings of medical societies and other health groups throughout the area.

The new office building of the New York State Department of Health.

New York City

Dr. Brunschwig Honored.—Dr. Alexander Brunschwig, New York surgeon, has received official notification of promotion to the rank of Officier in the French National Order of the Legion of Honor. By decree of the president of the Republic of France, the honor was bestowed upon Dr. Brunschwig "as a token of appreciation for the valuable services rendered by him to the cause of Franco-American cooperation in the field of medicine." Dr. Brunschwig, who was first awarded the Legion of Honor in 1950, grade Chevalier, is chief, gynecology service, Memorial Center for Cancer and Allied Diseases, and professor of surgery, Cornell University Medical College.

Personal.—Recently Dr. Louis J. Soffer, clinical professor of medicine, State University of New York College of Medicine, was awarded the Alumni Achievement medal of the University "for outstanding contributions to medicine." Previously, he was awarded the Harlow-Brooks medal by the New York Academy of Medicine. He served as a consultant of the Mount Sinai Hospital staff from 1938 to 1946 and became regional consultant, U. S. Veterans Administration in 1952.——Dr. John Caffey, professor of radiology, Columbia University College of Physicians and Surgeons, was elected honorary member of the Royal Society of Medicine at its London meeting "in recognition of his distinguished services to science."——Dr. George E. Daniels has been appointed director of the Columbia Psychoanalytic Clinic, succeeding Dr. Abram Kardiner, who has retired and accepted an appointment as lecturer in the department of psychiatry.——Dr. George T. Pack has been invited to speak at the third National Cancer Congress of the Chilean Cancer Society in November, when he will lecture on Cancer of the Stomach and the Surgical Treatment of Liver Tumors.

NORTH CAROLINA

Aging Research Grant.—A $306,922 grant for research on aging has been made to Duke University, Durham. This is the first grant in the U. S. Public Health Service's new program designed to encourage establishment of research centers in which many departments of a university and health and related agencies of a community will cooperate in studying various aspects of aging. The program at Duke University has four main objectives: (1) to develop a center for aging research based upon a university-wide effort; (2) to support fundamental research concerned with health problems of aging and to include relevant research contributions from the social and behavioral sciences and related fields; (3) to train investigators interested in the problems of aging; and (4) to foster a regional resource for the dissemination of scientific knowledge in the field of aging.

The Public Health Service's program to encourage research on aging is under the Center for Research on Aging at the National Institutes of Health, Bethesda, Md., established in October, 1956, under the direction of Dr. G. Halsey Hunt.

OHIO

Personal.—Dr. Edward A. Gall, head of the pathology department, University of Cincinnati College of Medicine, has been named editor in chief of the *American Journal of Pathology*. The journal is the official organ of the American Association of Pathologists and Bacteriologists, of which Dr. Gall is secretary.

Public Health Research Grants.—Myron Leon, Ph.D., Saint Luke's Hospital associate in surgical research, has been awarded grants by the National Institutes of Health of the Public Health Service totaling $47,100. The grants, covering a three-year period, are to be used for the study of purification and properties of complements and properdin. Dr. Leon will be assisted in these studies by two exchange fellows from Germany, Dr. Klaus Rother and Dr. Ursula Rother.

PENNSYLVANIA

Hawthorne Surgical Society.—The Hawthorne Surgical Society, an honorary fellowship of qualified surgeons who are alumni of the Graduate School of Medicine of the University of Pennsylvania, Philadelphia, will hold its fifth annual meeting Oct. 16 at the Shelburne Hotel in Atlantic City, N. J. The meeting will be addressed by Dr. Henry L. Bockus, chairman, department of medicine, University of Pennsylvania, Graduate School of Medicine. Reservations should be forwarded to Dr. Julian A. Sterling, Secretary, Hawthorne Surgical Society, 1008 Sharpless Road, Philadelphia 26, Pa.

Philadelphia

Cancer Research Grants.—U. S. Public Health Service grants totaling $38,559 have been awarded members of the faculty of the Temple University School of Medicine. The two largest grants are for cancer studies in progress under the direction of Dr. Herbert M. Stauffer, head, department of radiology, and Dr. Valy Menkin, associate professor of experimental pathology.

Personal.—The Lillian K. Synder award of the Philadelphia Allergy Society has been given to Dr. George I. Blumstein, assistant professor of immunology at the Temple University Medical Center, a paper written in conjunction with Dr. Henry [illegible], of Fairborn, Ohio. The society presents the award annually to the paper deemed most worthy from the scientific point of view.——Dr. Ernest A. Spiegel, professor of experimental and applied neurology, and Dr. Henry T. Wycis, clinical professor of neurosurgery, Temple University School of Medicine, attended the First International Congress of Neurological Sciences in Brussels, Belgium, recently, and participated in a special symposium devoted to stereotaxic operations in which they have pioneered. They reported on, "Principles and Methods of Stereoencephalotomy."

SOUTH DAKOTA

Personal.—Dr. Magni Davidson has been appointed secretary of the South Dakota Board of Medical Examiners, replacing Dr. Chester B. McVay.——Dr. George T. Jordan was presented a distinguished service award at the annual University of South Dakota Medical School Banquet recently. The award was in recognition of Dr. Jordan's many years of service devoted to clinical instruction in the field of otolaryngology and ophthalmology.

State Medical Election.—The following officers of the South Dakota State Medical Association have been installed: Dr. M. M. Morrissey, Pierre, president; Dr. Arthur A. Lampert, Rapid City, president-elect; Dr. Robert A. Buchanan, Huron, vice-president; Dr. A. P. Reading, Marion, secretary-treasurer.

GENERAL

Society News.—Officers of the National Medical Association are as follows; Dr. Arthur M. Townsend Jr., St. Louis, president; Dr. Relliford S. Smith, Macon, Ga., president-elect; Dr. Leonidas Berry, Chicago, first vice-president; and Dr. John T. Givens, Norfolk, Va., executive secretary.

Personal.—Dr. Alfred L. Copley, formerly of New York City, has accepted a position as director of experimental research in vascular diseases at the new Medical Research Laboratories, Charing Cross Hospital, part of the University of London. Dr. Copley, an experimental physiologist, has been working since 1952 in Paris, France, at first as head of the Laboratory of Physiology at the International Children's Center, and later as Chargé de Recherches of the Institut National d'Hygiéne. His work will be aided by a grant from the National Science Foundation, Washington, D. C. He will continue his investigations of the endothelium in relation to hemorrhage and of thrombosis and atherosclerosis.

Award for Laryngology Research.—Establishment of the Gould Award for Research in Laryngology was announced at the recent International Voice Conference by Dr. William E. Gould, president, William and Harriet Gould Foundation for Medical Research. The first recipient is Dr. K. Faaborg-Andersen, for his electromyographic studies of the intrinsic laryngeal muscles in humans. The board of directors of the foundation has approved specific funds for this annual award to encourage basic laryngeal research. While these funds are accumulating, the amount of the annual prize has been set at $250. An international committee will be appointed to draw up the regulations governing this award. For information write Dr. Hans V. Von Leden, Medical Director, William and Harriet Gould Foundation, 30 N. Michigan Ave., Chicago 2, Ill.

Tuberculosis Research Fellowship.—The New York Tuberculosis and Health Association has announced that the James Alexander Miller Fellowship will be available for the year starting July 1, 1958. This fellowship has been established by the association to assist a qualified investigator in medical or biological sciences who will devote full time to a research project in tuberculosis or some related problem. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that he will be provided with the facilities necessary for the pursuit of the work. The annual stipend is $7,000. Consideration will be given to extension of the term of the fellowship at the end of the first year. Applications should be submitted in duplicate by Nov. 1. Address: the James Alexander Miller Fellowship Committee, the New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16, N. Y.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Aug. 24, 1957		Aug. 25, 1956
	Paralytic Type	Total	Total
New England States			
Maine	...	2	2
New Hampshire	...	...	...
Vermont	...	...	...
Massachusetts	...	1	6
Rhode Island	...	...	1
Connecticut	1	3	7
Middle Atlantic States			
New York	9	22	51
New Jersey	...	8	15
Pennsylvania	...	5	13
East North Central States			
Ohio	5	29	46
Indiana	5	17	26
Illinois	7	42	167
Michigan	10	53	42
Wisconsin	1	25	39
West North Central States			
Minnesota	...	...	15
Iowa	...	8	68
Missouri	...	5	31
North Dakota	...	...	2
South Dakota	...	2	1
Nebraska	...	3	12
Kansas	...	8	18
South Atlantic States			
Delaware	...	...	1
Maryland	1	2	6
District of Columbia	4	7	...
Virginia	9	11	13
West Virginia	1	1	9
North Carolina	...	12	19
South Carolina	...	1	6
Georgia	7	7	13
Florida	2	5	10
East South Central States			
Kentucky	4	7	10
Tennessee	4	6	12
Alabama	...	2	15
Mississippi	...	4	21
West South Central States			
Arkansas	1	2	9
Louisiana	2	6	31
Oklahoma	2	9	19
Texas	6	30	50
Mountain States			
Montana	...	1	1
Idaho	...	...	10
Wyoming	1	1	4
Colorado	...	2	9
New Mexico	...	...	2
Arizona	...	1	7
Utah	...	...	8
Nevada	...	...	...
Pacific States			
Washington	3	4	9
Oregon	1	1	3
California	8	41	85
Territories and Possessions			
Alaska	...	...	1
Hawaii	...	...	2
Puerto Rico	1	1	...
Total	95	397	947

Cirrhosis of the Liver.—The Metropolitan Life Insurance Company has reported that cirrhosis of the liver now ranks among the 10 leading causes of death in the United States. At ages 45-64, the only diseases which outrank cirrhosis of the liver as a cause of death are heart disease, cancer, and cerebral hemorrhage. In 1956 cirrhosis accounted for a total of about 18,000 deaths in the United States, about two-thirds of them among males. Cirrhosis of the liver shows marked geographic variations in its death rate, tending to be highest in the eastern industrial states and California, and lowest in the South and Southwest. Compared with a national average of 9.9 per 100,000 in 1950-1954, the death rate from the disease ranged from 3.7 in South Carolina to 18.5 in the District of Columbia. More than one-fourth of the deaths from the disease are reported to be associated with alcoholism, but the reporting appears incomplete. Overweight adversely influences the mortality from cirrhosis, according to insurance experience. A recent study among insured overweight men showed that the mortality from the disease was two and one-half times that of standard risks.

Occupational Health Conference.—The first annual Western Occupational Health Conference will be held Oct. 4-6 at the Biltmore Hotel, Los Angeles. The program includes the following panel discussions and moderators:

Human Factors in Engineering, Craig L. Taylor, Ph.D., University of California, Los Angeles.
Dermatological Problems in Industry, Dr. Harold Price, Los Angeles.
Hazards, Hidden and Otherwise, Mr. Jack Shanahan, safety engineer, U. S. Electric Motors, Inc.
Hiring the Handicapped Without Handicapping Industry, Dr. H. L. Herschensohn, medical director, Douglas Aircraft Co.
Radiation in Industry, Dr. Birchard M. Brundage, medical department, North American Aviation Company.
Emotional Problems in Industry, Mrs. Marion Mayne, R. N., Los Angeles County Health Department.

Guest speaker at the banquet Oct. 5 will be Mrs. Spencer Tracy, founder of the John Tracy Clinic. For information write Dr. A. C. Remington, Western Occupational Health Conference, 9851 Sepulveda Blvd., Los Angeles 45, Calif.

WEST VIRGINIA

Personal.—Dr. John N. Rich, of Huntington, chief, clinical service, Veterans Administration, Huntington, has been named superintendent of the Andrew S. Rowan Memorial Home at Sweet Springs. He succeeds Dr. Robert G. Blackwelder, of Marion, Va. Dr. Rich has served with the Veterans Administration since 1946. Prior to that time he was a member of the staff of several hospitals in Philadelphia.

University News.—Dr. Robert R. Glover, professor of thoracic surgery, Temple University, Philadelphia, will be the guest lecturer Oct. 20 at the auditorium of the Charleston General Hospital, Charleston. The lecture, "Diseases of the Coronary Arteries," is being sponsored by the West Virginia

Langlois, William Edward, Worcester, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; for many years school physician; died in St. Vincent Hospital July 5, aged 85, of chronic nephrosclerosis and uremia.

Lapp, Henry Clarence, North Tonawanda, N. Y.; University of Vermont College of Medicine, Burlington, 1897; served as city health officer and as county coroner; on the staff of the DeGraff Memorial Hospital; died June 29, aged 84, of coronary disease.

Lawrence, Frederic Mortimer, Carlisle, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1894; died in the Carlisle Hospital July 3, aged 85, of arteriosclerotic heart disease.

Lee, George Francis, Santa Clara, Calif.; Denver and Gross College of Medicine, Denver, 1909; veteran of World War II; died in the Letterman Army Hospital, San Francisco, June 1, aged 70, of bronchopneumonia and cirrhosis of the liver.

Lischer, Robert Franklin ⊕ Mascoutah, Ill.; Washington University School of Medicine, St. Louis, 1904; served on the staff of St. Elizabeth's Hospital in Belleville, where he died July 6, aged 83, of cerebral thrombosis and arteriosclerosis.

McBryde, Stewart ⊕ Arlington, Va.; Medical College of Virginia, Richmond, 1912; served overseas during World War I; on the staff of the Arlington Hospital; died July 10, aged 70, of congestive heart disease.

McCalip, William Davis ⊕ Yazoo City, Miss.; Louisville (Ky.) Medical College, 1897; veteran of World War I; died in the King's Daughters' Hospital June 26, aged 80, of diabetes mellitus and coronary decompensation.

McCutcheon, Merle D'Aubigne ⊕ East Liverpool, Ohio; College of Physicians and Surgeons, Baltimore, 1908; member of the Radiological Society of North America; veteran of World War I; associated with the East Liverpool City Hospital; died June 26, aged 72, of cancer.

McEntee, Edward James, Brooklyn; Columbia University College of Physicians and Surgeons, New York City, 1901; an associate member of the American Medical Association; fellow of the American College of Surgeons; for many years on the staff of St. Catherine's Hospital; died July 9, aged 77.

McNeel, John Osborne ⊕ St. Louis; University of Virginia Department of Medicine, Charlottesville, 1935; veteran of World War II; resigned from the U. S. Public Health Service Aug. 16, 1940; on the staff of Jewish Hospital; accidentally drowned June 19, aged 48.

Markley, Josiah Preston, Laramie, Wyo.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; veteran of World War I; died in the Veterans Administration Hospital, Cheyenne, May 20, aged 78.

Martin, Cecil Edward ⊕ Emporia, Va.; University College of Medicine, Richmond, 1909; died in the Roanoke Rapids (N. C.) Hospital May 25, aged 77, of coronary thrombosis.

Martin, Roy David, Grand Island, Neb.; University of Nebraska College of Medicine, Omaha, 1911; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served on the staffs of the Grand Island Lutheran and St. Francis hospitals; died July 1, aged 72.

Martyn, George, Los Angeles; Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society, 1892; L. R. C. P., of London, and M. R. C. S., of England, 1893; an associate member of the American Medical Association; died April 29, aged 88, of cerebral arteriosclerosis and thrombosis.

Melvin, Alexis Merritt ⊕ South Miami, Fla.; Jefferson Medical College of Philadelphia, 1904; served in France during World War I; died June 18, aged 76, of arteriosclerotic heart disease.

Menkel, Herman Carl, McMinnville, Ore.; Denver College of Physicians and Surgeons, 1906; for many years a medical missionary in India; died June 30, aged 82.

Mercer, Eugene LeRoy, Swarthmore, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1913; served as director of athletics and coach, Swarthmore (Pa.) College; formerly dean of the department of physical education at the University of Pennsylvania, Philadelphia; died in the University Hospital, Philadelphia, July 2, aged 68.

Minassian, Harootune Avedis ⊕ Des Moines, Iowa; Bellevue Hospital Medical College, New York City, 1887; died June 26, aged 89, of heart disease.

Moore, Moore Sr. ⊕ Memphis, Tenn.; Memphis (Tenn.) Hospital Medical College, 1898; fellow of the American College of Surgeons; for many years chief of staff, Home for Incurables; consultant, Methodist Hospital, where he died June 28, aged 80, of cerebral thrombosis.

Murphy, Edgar Watson ⊕ New Albany, Ind.; University of Louisville (Ky.) School of Medicine, 1931; died April 6, aged 55, of acute myocardial infarction.

Parker, Samuel Thomas, Pharr, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1910; died July 2, aged 70, of uremia.

Perry, Richard Wilbert ⊕ Seattle; Trinity Medical College, Toronto, Ontario, Canada, 1897; L. R. C. P., of Edinburgh, L. R. C. S., of Edinburgh and L. R. F. P. & S., of Glasgow, 1900; past-president of the King County Medical Society; charter member and past-president of the Puget Sound Academy of Ophthalmology and Otolaryngology; past-president of the Seattle Academy of Surgeons; veteran of World War I; died July 9, aged 82, of cancer.

Pyle, Jesse N., Dallas, Texas; Barnes Medical College, St. Louis, 1906; died July 2, aged 85, of cerebral thrombosis.

Rainey, Louise G., New York City; Laura Memorial Woman's Medical College, Cincinnati, 1902; died May 9, aged 89.

Rankin, Claude Bernard, Monticello, Ky.; Hospital College of Medicine, Louisville, 1898; died June 11, aged 86, of a heart attack.

Reineke, George F. ⊕ New Ulm, Minn.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1896; specialist certified by the American Board of Otolaryngology; served on the staffs of the Loretto and Union hospitals; died May 21, aged 86, of coronary thrombosis.

Rejent, Anthony Joseph, Toledo, Ohio; St. Louis University School of Medicine, 1921; fellow of the American College of Physicians; on the staff of St. Vincent's Hospital, where he died June 23, aged 60, of coronary thrombosis.

Roach, Richard Aloysius, Santa Monica, Calif.; Northwestern University Medical School, Chicago, 1906; died in Los Angeles, June 28, aged 73, of uremia, hypertensive heart disease, and interstitial nephritis.

Robinson, Charles Irwin, Lakeland, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1910; died May 2, aged 75.

Russell, Thomas J. ⊕ Philadelphia; University of Maryland School of Medicine, Baltimore, 1910; died July 11, aged 71.

Schatz, Francis John ⊕ St. Cloud, Minn.; Jefferson Medical College of Philadelphia, 1909; died May 20, aged 74, of coronary occlusion.

Schrade, Joseph Patrick, New York City; Long Island College of Medicine, Brooklyn, 1940; veteran of World War II; died in the Veterans Administration Hospital June 28, aged 44.

Schwartz, Abraham S., New York City; Long Island College Hospital, Brooklyn, 1906; an associate member of the American Medical Association; died in the Manhattan Eye, Ear, and Throat Hospital, June 16, aged 81.

Sherwood, George Edward ⊕ Kimball, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1894; past-president of the Stearns-Benton Counties Medical Society; vice-president and director of the State Bank of Kimball; served on the staffs of the Meeker County Memorial Hospital in Litchfield and St. Cloud (Minn.) Hospital, where he died July 5, aged 85, of bilateral pneumonia.

Silver, H. Fletcher ⊕ Goldsboro, Md.; Baltimore Medical College, 1896; died in the Memorial Hospital, Easton, May 5, of carcinoma of the prostate.

Sivertsen, Andrew, Minneapolis; Marquette University School of Medicine, Milwaukee, 1916; an associate member of the American Medical Association; died in St. Barnabas Hospital June 8, aged 77, of coronary thrombosis.

Skwor, Charles James ⊕ Mishicot, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; died June 20, aged 77.

Smith, James Bathurst Jr., Keysville, Va.; Medical College of Virginia, Richmond, 1926; died April 22, aged 57.

Sogge, Ludwig L. ⊕ Windom, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; past-president of the Minnesota State Medical Association; died July 2, aged 78, of carcinoma of the lungs.

Storey, Charles Arthur, Pasadena, Calif.; University of Wooster Medical Department, Cleveland, 1882; died July 17, aged 92.

Stratton, John Newton ⊕ Safford, Ariz.; Southwestern University Medical College, Dallas, Texas, 1907; died in the Tucson Medical Center, Tucson, June 25, aged 79, of pulmonary edema and arteriosclerotic heart disease.

Svec, Floyd Alfred ⊕ Los Angeles; Northwestern University Medical School, Chicago, 1945; interned at the Wesley Memorial Hospital, where he served a residency; served in the U. S. Naval Reserve and the U. S. Army Reserve; instructor in medicine, University of Southern California School of Medicine; on the staffs of the California Lutheran and Los Angeles General hospitals; died in Newhall, Calif., July 7, aged 40, in a traffic accident.

Taylor, Jay Richard, Brooklyn; University of Pennsylvania Department of Medicine, Philadelphia, 1878; died in the Kings County Hospital June 18, aged 100, of bronchopneumonia, pyelonephritis, and emphysema.

Taylor, John Edwin Marvin, Sparkman, Ark.; University of Arkansas School of Medicine, Little Rock, 1912; member of the American Academy of General

Practice and the Arkansas Medical Society; for many years secretary of the school board and member of the city council; died in Little Rock July 3, aged 72, of cerebral hemorrhage.

Taylor, Septimus Theodore, Alexandria, La.; Louisville (Ky.) Medical College, 1902; service member of the American Medical Association; veteran of World War I; for many years associated with Veterans Administration, retiring in June, 1949; died June 26, aged 78.

Terry, Elmer Clayton, Washington, D. C.; Howard University College of Medicine, Washington, 1916; served on the faculty of his alma mater; on the staff of the Freedmen's Hospital; died July 9, aged 70, of heart failure.

Thomas, Joseph Turner, Detroit; Meharry Medical College, Nashville, Tenn., 1905; veteran of the Spanish-American War; died June 13, aged 82.

Thompson, Leland Alexander ⊕ Springer, N. M.; University of Tennessee Medical Department, Nashville, 1908; died June 24, aged 77.

Tinsley, Will Houston ⊕ Gonzales, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1943; veteran of World War II; died March 28, aged 37, of acute coronary occlusion.

Treglown, Llewellyn Henry, Livingston, Wis.; Keokuk (Ia.) Medical College, 1897; died March 13, aged 83.

Trimble, Staunton, Burnsville, W. Va.; Baltimore Medical College, 1908; died in Weston July 5, aged 74.

Vail, William Penn, Blairstown, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; veteran of World War I; died in the Newton (N. J.) Memorial Hospital June 22, aged 77, of rupture of an aneurysm and arteriosclerosis.

Valentine, Richard Ellis ⊕ Tallula, Ill.; Louisville (Ky.) Medical College, 1904; veteran of World War I; died in the Illinois Soldiers' and Sailors' Home, Quincy, June 13, aged 76, of terminal pneumonia.

Van Metre, Richard Thompson, Fremont, Neb.; State University of Iowa College of Medicine, Iowa City, 1905; an associate member of the American Medical Association; died in Bradenton, Fla., June 13, aged 77, of cerebral hemorrhage.

Vass, Rufus Samuel, Raleigh, N. C.; Leonard Medical School, Raleigh, 1912; served on the staff of St. Agnes Hospital; died June 8, aged 70.

Visanska, Samuel A. ⊕ Atlanta, Ga.; Medical College of the State of South Carolina, Charleston, 1894; died July 18, aged 88, of a heart attack.

Weeks, Joseph Clayton Jr., Lake City, Fla.; University of Tennessee College of Medicine, Memphis, 1932; health officer of Columbia, Gilchrist, and Hamilton counties; veteran of World War II; died June 29, aged 49.

Weitzel, William Forrest, Indiana, Pa.; Baltimore Medical College, 1903; an associate member of the American Medical Association; died in the Presbyterian Hospital, Pittsburgh, June 2, aged 79, of pneumonia.

Winton, Sigmund Samuel ⊕ Chicago; University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1939; specialist certified by the American Board of Internal Medicine; member of the American College of Cardiology; on the staffs of the Columbus Memorial, Weiss Memorial, and Michael Reese hospitals; died July 27, aged 47, of myocardial infarction, coronary thrombosis, and coronary arteriosclerosis.

White, Henry Clay, Covington, Ky.; Medical College of Ohio, Cincinnati, 1897; veteran of World War I; for many years health officer of Kenton County; died in the Veterans Administration Hospital, Cincinnati, June 29, aged 83.

White, Luther Alexander, Brooklyn; Howard University College of Medicine, Washington, D. C., 1925; veteran of World War I; died May 29, aged 67.

Williams, Frederic Nathaniel ⊕ Mount Vernon, Ind.; University of Louisville (Ky.) Medical Department, 1911; veteran of the Spanish-American War and World War I; died in the Welborn Memorial Baptist Hospital, Evansville, May 15, aged 79, of carcinoma of the duodenum with massive hemorrhage.

Williams, Sara Angela Mulvanity, Yonkers, N. Y.; Tufts College Medical School, Boston, 1908; died June 17, aged 71, of coronary occlusion.

Wilson, Isaac M., Sunset, Texas; Memphis (Tenn.) Hospital Medical College, 1900; died in Bowie May 1, aged 83.

Yawger, Nathaniel Shurtz ⊕ Philadelphia; University of Pennsylvania Medical Department, Philadelphia, 1898; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; died June 2, aged 84, of a cerebral vascular accident.

Young, Edward V. J. ⊕ Chicago; Illinois Medical College, Chicago, 1910; died in the Passavant Memorial Hospital July 8, aged 72, of pulmonary embolism.

FOREIGN LETTERS

INDIA

Adenocarcinoma of the Uterus.—A. Dass (*J. Obst. & Gynec. India* 7:4 [June] 1957) studied 22 patients with adenocarcinoma of the body of the uterus, half of whom fell in the age group 41 to 50 years. Thus here it appears in a younger age group than in the West. In eight of the patients in this series menopause had not occurred, although malignancy of the uterus is a disease of the postmenopausal age. This may be accounted for by the younger age group. The prognosis in younger patients is not necessarily worse than that in older patients. No rapid spread of the growth was noticed in the young patients, and they constituted better operative risks. All the patients were married except one; 10 were nulliparous. Irregular bleeding was the main symptom for which patients came to the hospital, it being present in 21. Several of these patients did not come to the hospital till about two years after the onset of the symptoms.

Of 755 patients subjected to curettage for irregular uterine bleeding in the four-year period of this study, 36 showed evidence of endometrial cancer. Obesity, diabetes, and hypertension were not commonly associated with adenocarcinoma of the uterus, as reported by others. The only constant feature that was repeatedly observed was the high incidence of either absolute or relative sterility. In one patient a diagnosis of metropathia haemorrhagica was made on curettage; later the patient was found to have malignancy of the uterus. Another patient had multiple fibromyomas with associated adenocarcinoma. Resection followed by irradiation was performed whenever possible in this series on 14 patients. Six patients were given preoperative deep x-ray therapy because of the presence of extreme sepsis in a growth protruding from the cervix. The effect of preoperative irradiation was striking in these patients. No adenocarcinoma of the uterus should be considered too advanced for treatment unless secondary metastases have developed. Four patients had irradiation only, as they were considered to be poor operative risks. No recurrence was observed after operation, although it is too early to assess the end-results.

Serum Proteins.—A. Kumar and co-workers (*Indian J. M. Sc.* 11:6 [June] 1957) made electrophoretic analyses of the serum proteins in 72 normal subjects ranging in age from 20 to 52 years. There were 53 men and 19 women, 34 of the men being professional blood donors coming from a poorer class of society. The hemoglobin value was above 13.5 Gm. per 100 ml. in each case. The value for the mean total serum proteins was 7.27 Gm. per 100 ml. with a very narrow range of variation. The albumin-globulin ratio varied from 4.95 to 0.95 with a mean of 1.70. The gamma-globulin was the highest of all the various globulin fractions. The values for gamma-globulin were significantly higher than those reported for Europeans and Americans. No significant difference was observed in the values of total serum proteins in the two sexes and in the men of different economic groups. The different protein moieties also did not show any appreciable difference in the various groups.

Poliomyelitis.—C. P. Tiwari (*Indian Practitioner*, June, 1957) studied 100 patients with paralytic poliomyelitis. The disease was more common in males (63%) than in females. Seventy-three of the patients were under 5 years of age. The onset of the disease was determined from the history. Thus in 89 patients it was judged by such symptoms as fever associated with paralysis, and in 8 it was suspected because of weakness in the lower limbs. One patient reported within one week of the onset of paralysis, but another did not report until 25 years after the onset. The most common presenting symptom was paralysis. Forty-three patients came to the hospital because of paralysis, but 46 reported only after such sequelae of paralysis as deformities and shortening had appeared. Inability to walk after 2 years of age was the complaint for which eight children were brought to the hospital. Three cases were detected incidentally during clinical examination for an unrelated complaint. Though the disease was present in all strata of society, deformities and contractures were more common in patients of the lower class. The lower extremity was involved in 80 patients, and in many of these the involvement was bilateral. There was a preponderance of involvement on the left side in both upper and lower extremities. Fixed deformities were observed in most patients. Some did not develop deformities either because of early treatment or because of total paralysis of muscles resulting in a flail joint.

Rheumatoid Arthritis.—Gour and Dutta (*J. Indian M. A.* 29:2 [July 16] 1957) studied 160 patients with rheumatoid arthritis of whom 65% were between 21 and 35 years of age. In the entire series, 36 were men and 124 were women. Swelling of interphalangeal and metacarpal joints was a common finding.

The items in these letters are contributed by regular correspondents in the various foreign countries.

The wrist, ankle, and elbow were also commonly involved. Fibrous ankylosis was present in four patients. Wasting of muscles was found in 108. The erythrocyte count and hemoglobin level were generally low. The leukocyte counts varied from 4,300 to 11,200 per cubic millimeter. Lymphocytes predominated in 116 patients and polymorphonuclear cells in 44. The sedimentation rate was invariably increased. Estimation of plasma proteins showed hypoproteinemia in 23 patients; in 36 the globulin level was increased and the albumin level was decreased. Salicylates, Irgapyrine (equal parts phenylbutazone and aminopyrine), autohemotherapy, and gold injections were given to 142 patients with not very encouraging results; 9 were treated with injections of placental serum, 7 with injections of serum from pregnant women, and 2 were given corticotropin and cortisone. The serum injections were given in doses of 6 or 7 cc. intramuscularly twice a week mixed with penicillin to prevent infection. There was definite clinical improvement after these injections; this was, however, not sustained unless the injections were continued for five or six months. The sedimentation rate came down appreciably, but the roentgenograms showed no change in spite of the clinical improvement. No untoward effects were seen.

Aortic Changes in Malnutrition.—Sriramachari and Gopalan (*Indian J. M. Sc.* 11:6 [June] 1957) studied the changes in the cardiovascular system of monkeys in which protein malnutrition was induced. Degenerative changes in the aorta characterized by mucoid degeneration of the tunica media of the aorta were observed in five of eight animals. The outstanding features were breaking up of the elastic fibers, deposition of metachromatic material (mucoid) in the interstitial spaces, and an abnormal increase in the calcium content. These changes resembled the changes observed by others during aging, hypothyroidism of long duration, and in experimental pyridoxin deficiency. In animals with such degenerative changes, the thyroid gland showed changes suggestive of hypothyroidism. Atherosclerotic lesions were not observed in any of these animals. The incidence of degenerative atherosclerotic changes as against atherosclerosis in malnourished persons should be investigated.

PERU

The Endometrium of Sterile Women.—A histochemical study of the endometrium of 43 sterile married women between 22 and 40 years of age was carried out by Mezzadra and co-workers (*Geniceologia y Obsttetricia*, vol. 3, no. 1, March, 1957). The histochemical and morphologic characteristics of about 400 samples of endometrium were examined for their glycogen, mucus, alkaline phosphatase, mucoprotein, and mucopolysaccharide content. In order to prevent inaccuracies in the results, the patients were given no local or hormonal treatment. Endometrial biopsy was performed within the 24 hours before menstruation. In 14 patients the endometrium revealed an insufficient secretion phase and in 7 an anovular cycle. Glycogen, mucopolysaccharides, and mucoprotein levels were normal in amount and distribution in relation to the time of the menstrual cycle, but the alkaline phosphotase level in both the glands and the vessels was frankly diminished.

UNITED KINGDOM

Treatment of Sickle-cell Anemia.—Sickle-cell anemia, which is inherited and has a poor prognosis, is due to a defect in the oxygenation of the hemoglobin, which, when deprived of its oxygen by the respiring tissues, undergoes a molecular rearrangement to form long rod-like particles with resulting alteration of the erythrocyte contour. The standard treatment is blood transfusion. After the discovery that zinc acetate and sodium cyanide, which are carbonic anhydrase inhibitors, prevent the in vitro sickling of washed erythrocytes from patients with sickle-cell anemia, Hilkovitz (*Brit. M. J.* 2:266, 1957) tested the action of acetazolamide on the blood of patients with this disease. The drug is a powerful although comparatively nontoxic inhibitor of carbonic anhydrase. In vitro tests showed that a concentration of 1 part in 20,000 of acetazolamide decreased the degree of sickling of blood in persons with sickle-cell anemia to almost zero. Further tests showed that it inhibits sickling by preventing oxygen loss from the hemoglobin of erythrocytes. The administration of the drug at a dosage level of 2 to 7 mg. per kilogram of body weight to a child with sickle-cell anemia reduced the percentage of sickle cells from 18.7 to 7.5 for several hours. A month's treatment with acetazolamide caused the hemoglobin to rise from 7.1 to 9.4 Gm. per 100 ml. of blood.

Attempted Suicide.—It is a legal anomaly that those who fail in suicidal attempts are guilty of a felony, while those who succeed are usually pronounced of unsound mind at coroners' inquests. In 1956, of 4,844 cases of attempted suicide known to the police (2,480 men and 2,364 women), 662 were charged. A few of these went to prison. Dr. Phyllis Epps examined 100 women sentenced to prison for attempted suicide (*Lancet* 1:182, 1957). Their ages ranged from 17 to 81 years; about 75 were under 40. The greatest number were between 20 and 29, and although many professed some form of religion, it played an unimportant part in the lives of most of them. Just under half were single, although 25% of these were cohabiting or in an involved situation, and a further 30% were worried over love affairs or illegitimate pregnancies. Only 10% of those married denied marital difficulties. An unhappy home background was common. Loneliness was a factor in many cases. In only two persons was physical disability present or contributory; another eight were pregnant, and pregnancy contributed to their depression. A history of previous mental illness was obtained from 49, and 42 had been in mental hospitals, 20 of them more than once. Thirty had been previously convicted in the courts, and 42 knew that suicide was an offense, although this did not deter them. Eleven had been charged with attempted suicide previously. A large number (90) were admitted to the hospital before appearing in court and being sentenced.

The method of attempted suicide was an overdose of drugs in 52 (barbiturates in 34 and aspirin or codeine in 18), the use of gas in 17, cutting a vein in 15, drowning in 5, poison in 3, and miscellaneous methods in 8. About 24 gave warning of their intention by letters, and 44 had made previous attempts. Forty-nine were psychoneurotic, 19 psychotic, 16 psychopathic, 11 epileptic, and 5 were borderline or mental defectives. About 24 were chronic alcoholics. In 82 cases a medical report was requested by the police. Dr. Epps states that many attempts at suicide are known to physicians but not reported to the police. The attempted suicide rate is probably six or seven times the actual suicide rate.

Blood Tests and Legitimacy.—The results of blood tests were taken as conclusive evidence by a Scottish court in a legitimacy case. A mother claimed that her child was illegitimate and not the lawful offspring of her former husband, who obtained a divorce and legal custody of their child, who was born three weeks before their marriage. The husband claimed that the child became legitimate by his subsequent marriage to the mother, who hoped to keep the child by declaring it illegitimate. Blood tests were made by two pathologists. The judge said that unless there was a case of mutation, the chances of which were only 1 in 100,000, he would accept the evidence of the tests that the child was indeed not the daughter of the divorced husband. This overruled a decree giving the custody of the child to the former husband, because custody cannot be granted to a man who is not the child's father.

Benzidine and Cancer.—At a Manchester inquest it was stated that the handling of benzidine by a 56-year-old worker led to his death. A verdict of accidental death from cancer of the bladder was returned. The man had worked for several years weighing out dye intermediates, including benzidine. He was admitted to hospital six months before his death and found at operation to be suffering from cancer of the bladder. It was stated at the inquest that until 1938 no protective clothing or pads for the mouth and nose were worn by workers in the dye industry, although some workers were given tests from time to time. A toxicologist employed by the company said that he examined exposed employees with a view to the early diagnosis of cancer of the bladder. It was only in 1941 that the carcinogenic properties of benzidine were recognized, and since then all those exposed were protected, and a new plant was designed to minimize the risk of direct contact. The deceased had been handling benzidine from 1935 to 1939, before the risk of cancer of the bladder was known.

Bronchiectasis.—A subcommittee of the antibiotics clinical trials committee of the Medical Research Council reported on the treatment of severe bronchiectasis by the prolonged administration of penicillin and oxytetracycline (*Brit. M. J.* 2:255, 1957). The patients selected were between 15 and 55 years of age. They had had symptoms for at least three months, and the bronchogram showed frank bronchiectasis affecting at least two lung segments. The sputum was either purulent or mucopurulent, and four 24-hour specimens measured at least 150 ml., or 25 ml. if mucopurulent. Observations were also made on the extent of cough, hemoptysis, dyspnea, and disability. A series of 122 patients were allocated at random to one of three forms of treatment; 38 were treated with penicillin, 44 with oxytetracycline, and 40 controls with lactose. Two 0.25 Gm. capsules were given four times a day two days a week for a year. The patients were examined regularly during this period, and measurements were made of the volume of a 24-hour sputum specimen and of the severity of cough, dyspnea, hemoptysis, and disability. As far as possible, the three groups of patients were matched for age, history of illness, and the extent of pulmonary involvement as determined bronchographically. During the year three deaths occurred, one from each group; two patients stopped treatment because they could not tolerate it, and five defaulted. Of the remaining 112 patients, 36 were treated with penicillin or lactose, respectively, and 40 with oxytetracycline. Sputum production was diminished more in the group treated with oxytetracycline than in the others. There was some reduction in the severity of cough and dyspnea in each group. There was some reduction in each group in disability, judged by the number of days' absence from work, episodes of fever, and the number of days spent in bed. No toxic effects were observed with any of the preparations. Although, in general, the results with oxytetracycline were better than with penicillin, it was considered that its increased cost would not justify its widespread use in most patients with bronchiectasis. The physicians in charge of the patients estimated that 60% of the oxytetracycline-treated group, 42% of the penicillin-treated group, and 28% of the control group improved. Much of the improvement in all groups was attributed to postural drainage.

Chronic Bronchitis.—In 1955, deaths from the effects of bronchitis in Leeds (population 508,000) numbered 463, but only 67 died from tuberculosis. Dr. Gordon Edwards and co-workers of Leeds investigated the bacterial flora of patients with chronic bronchitis and the effect on the course of the disease of (1) a preparation containing sulfadiazine, sulfathiazole, and sulfamerazine, (2) oxytetracycline, and (3) an autogenous vaccine of Hemophilus influenzae. Sputum specimens from 320 consecutive patients with chronic bronchitis revealed that nearly half were purulent, with H. influenzae and Diplococcus pneumoniae as the most commonly occurring organisms, followed by Klebsiella pneumoniae, beta-hemolytic streptococcus, and Micrococcus pyogenes var. aureus. The criteria for diagnosis were that patients should be over 20 years of age; that they should have had cough, sputum, and dyspnea for more than a year with some disability arising from them; and that there should be no evidence of other causes for these symptoms. Sixty-six patients (57 men and 9 women) aged 28 to 71 years were admitted to the trial. Each patient was given 1.5 Gm. daily of oxytetracycline, or the sulfonamides, or a course of injections of the vaccine, starting with 100 million bacilli and increasing to a maximum of 2 billion organisms. The oxytetracycline and sulfonamides were given until the sputum became mucoid, and then the dose of each was reduced to 1 Gm. daily. Inert tablets were also used as controls. Treatment was continued for six months.

Two bacteriologists allotted patients to different treatment groups by random selection after balancing for sex and age. Final assessment was made from sputum changes (volume and purulence), respiratory disability (determined by work category), physical disability (colds or acute exacerbations of the chest condition), general health, and bacteria in the sputum. In addition a complete blood count, sedimentation rate, vital capacity determination, and a roentgenogram of the chest were made and body weight and chest expansion recorded. Two of the patients died, one from coronary thrombosis and the other from congestive heart failure, and 11 patients dropped out of the trial. This left 53. Statistical analysis of the data obtained at the end of the trial showed without doubt the clinical value of the continuous administration of oxytetracycline to patients with chronic bronchitis. Marked improvement followed the use of this drug, and the results were enhanced by the simultaneous use of sulfonamides. The use of the sulfonamides alone was of little clinical value, and the autogenous vaccine gave no benefit. Although H. influenzae and D. pneumoniae were the predominating pathogens, no significant change could be detected in the potentially pathogenic flora of bronchitic sputums after effective antibacterial drug treatment. It is possible that the value of the latter lies in preventing superinfection of the bronchial tree rather than by direct action on the established bacterial flora of the bronchi.

Research in Anesthesia.—The new department of anesthesia which opened at the Royal College of Surgeons, London, is the only department of anesthesia research in the country relieved of the responsibilities of teaching medical undergraduates and of providing a hospital anesthesia service. Clinical work is performed by members of the staff, who hold honorary appointments in some of the London hospitals. Postgraduate teaching is done in the department. The staff includes not only anesthetists but also physicists and other scientific workers. Two of the main research problems are hypothermia in experimental animals and human respiration under anesthesia. The department has been subsidized by generous gifts from the pharmaceutical industry.

Medical Etiquette.—In the opening article of the symposium on medical etiquette (*The Practitioner*, July, 1957), Dr. C. A. Clarke stated that there is no doubt that a deterioration has occurred in the relations between the family physician and the consultant since the introduction of the National Health Service for the following reasons: 1. There is a growing tendency for the family physician to lose patients, in the sense that, although they remain on his list, they are not his patients, treatment and advice always being given by somebody else. There seem to be too many special clinics for common conditions, all having too extensive a follow-up, so that patients tend never to get permanently discharged back to their own doctors. Consequently, the patients come to regard the hospital staff, and not the family physician, as their advisers. The young physician may become discouraged when he finds all he is left with are some incurable patients with psychoneuroses and chronic bronchitis. 2. Consultants in the National Health Service are paid at a much higher rate and are not so dependent as they used to be on the general practitioner for their livelihood. 3. All physicians have too much routine work to do. Most of them are either chasing full lists or full office hours. Dr. Clarke particularly criticizes the abuse of the system of domiciliary visits, i. e., the system whereby a consultant is paid $11.75 for each visit he pays to a National Health Service patient at the request of the patient's family physician. He cites the following example of what happens. A general practitioner saw a patient with a consultant, and two weeks after the original consultation he received a letter from the consultant saying that the latter had looked in again on the patient. He reported some findings and enclosed a second domiciliary visit form to be signed by the practitioner and returned to him. The reaction of the practitioner can well be imagined. In the old days when you saw two physicians talking to each other it was usually about their patients; now they are discussing how much money they can make out of the Health Service.

The Hippocratic Oath and the rules as laid down by the British Medical Association ethical committee are largely outdated in their details, according to Dr. A. L. Potter. He quotes the following example of an outdated rule: "Except in emergency, an industrial medical officer shall not undertake any treatment that is normally the responsibility of the employee's own doctor, unless it be with his agreement." As, on an average, there are 350 visits a day in the casualty departments in the factories with which he is concerned, Dr. Potter believes that a great waste of money, time, and medical, nursing, and clerical effort would result if this rule were strictly adhered to. It has proved much easier to obtain the cooperation of all the practitioners in the area and their agreement to his treating their patients by inviting them to come to the factories and see how the medical department works.

"A Bluebook Full of Whitewash."—In a pamphlet published by the Fellowship for Freedom in Medicine, the description "a bluebook full of whitewash" has been applied to the Guillebaud report on the National Health Service—the late Lord Horder's gallant rearguard action against the National Health Service and the only medical organization in the country with the specific aim of protecting the public and the medical profession from state monopoly in medicine. The Guillebaud committee was appointed by the Minister of Health in 1953 to suggest means of insuring the efficient use of the funds available to the Health Service and to make recommendations for avoiding a rising charge on the exchequer. In its report, published last year, the committee stated, "We have found no opportunity for making recommendations which would produce new sources of income or reduce in a substantial degree the annual cost of the Service." It is this complacent conclusion that is assailed in the pamphlet. The fellowship points out that the committee seeks to attribute some of the strains and stresses of the service to the difficulty experienced by many who had grown up under the old system in adjusting themselves to the new. To this it adds what appears to be an ominous suggestion that "the gradual emergence of a new generation"—one, presumably, to which the time honored ideal of service to medicine rather than to the state is unfamiliar—"may make comparatively simple many things which now appear difficult—or impracticable."

The fellowship has two major criticisms of the Guillebaud report. The first is that no constructive suggestions were put forward for transferring more work from the hospitals to general practitioners and thereby reducing the cost of the Service and improving the standard of general practice. The second is that there were no constructive recommendations for dealing with the present division of the Service into three watertight divisions—the hospital and specialist services, the general pratitioner services, and the local authority services. The fellowship's proposal for dealing with this unfortunate state of affairs is that the three parts of the Service should be fused at national, regional, and local levels. On the top story would be a national health board which would be responsible to the Minister of Health for preparing an annual budget, for the general administration of the Service, and for keeping a proper balance between the different parts of it. The work would be decentralized through regional and local health councils, which in their turn would have similar responsibility, including the disbursement of funds made available to them on the basis of budgets they had submitted. A further important advantage claimed for the establishment of such a board is that it would remove the Service from party politics.

The fellowship advances the following suggestions for the more efficient running of the Service: restoration of the physician's right to buy and sell the goodwill of practices; the imposition of a board and lodging charge for patients in hospitals; the raising of the charge on prescriptions; the introduction of the Australian method of providing essential drugs free and charging for the rest; the decentralization of financial control of hospitals by the adoption of a system of block grants for current expenditure; the placing of some responsibility on patients by imposing a small charge, at the time services are received, on those who can afford to pay; and lowering of the cost of private beds so as to attract more paying patients. The fellowship believes that the report leaves a strong impression that in its desire to avoid embarrassing the Ministry advisers, the committee shrank from proposals that might appear to disparage the present system. Unless due consideration is given to the manifest shortcomings of the report, it is almost certain that a succession of Health Ministers will use it as a shield behind which to hide in resisting attempts to bring about the major reorganization of the National Health Service which experience has shown to be so urgently needed.

CORRESPONDENCE

INTRACUTANEOUS ADMINISTRATION OF ASIAN INFLUENZA VACCINE

To the Editor:—Previous experiences with the intracutaneous method of immunization introduced originally by me for typhoid vaccine and later applied to other antigens (*J. A. M. A.* 164:1626 [Aug. 3] 1957) make it quite natural for the question to be raised as to whether this method could be applied in the immunization of individuals with the Asian influenza virus vaccine. I have been asked this question by several physicians with the objectives in mind of conserving the vaccine supply and of minimizing reactions. Previous experiments with vaccines prepared from strains of influenza virus other than the Asian have shown that an intracutaneous injection of 0.1 ml. of such a vaccine induces a degree of immunity in terms of antiviral antibody comparable to that provided by a subcutaneous injection of 1.0 ml.

Because the Asian strain is new to the United States, sufficient time has not elapsed to determine whether this also would be true of a vaccine prepared from this strain. However, after inquiry in various laboratories, it was learned that some preliminary experiments have been carried out by Dr. Maurice Hilleman, chief of the department of respiratory diseases, Walter Reed Army Institute of Research in Washington, D. C. After a personal conversation with him concerning the results of these experiments, Dr. Hilleman offered the following information, based on a small series of tests, which is being summarized with his permission: "the amount of antiviral antibody as measured by the hemagglutination technique engendered by intracutaneous injection of 0.1 ml. (containing 16 units of Asiatic 'flu' virus vaccine) was almost but not quite as good as that which followed subcutaneous injection of 1.0 ml. (containing 160 units). Therefore, where the supply is plentiful, the subcutaneous injection of 1.0 ml. is to be preferred. But, if the supply is short and conservation of it is necessary, then the injections may be given intracutaneously with the knowledge that the smaller dose will induce a level of antibody protection which approximates that of 1.0 ml. subcutaneously."

I am in agreement with the latter opinion expressed by Dr. Hilleman. I believe, therefore, that the vaccine should be administered subcutaneously in doses up to 1.0 ml. (depending upon age and weight) so long as the vaccine supply is adequate. If not, it can be given intracutaneously (and it is important that the entire dose be given into and not beneath the skin) in doses of 0.05 to 0.1 ml. (the former for young children, the latter for older children and adults). This method, likewise, can be utilized in those patients in whom the occurrence of a general or constitutional reaction (e. g., fever, chills, etc.) which occasionally follows subcutaneous injections might be detrimental to their condition, as for example in patients with general debility or cardiovascular disease. Since the immunity which follows injection of the influenza virus vaccine is variable in degree and temporary in duration, lasting for periods averaging perhaps four to six months, it might be well to give an additional booster dose of 0.05 to 0.1 ml. intracutaneously four or more months after the administration of the initial dose to those individuals who are being exposed to the disease at that time (in the event of an epidemic outbreak) or are likely to be exposed to the disease if it is still active in their community. Such administration can do no harm; in fact, it may be instrumental in stimulating the waning immunity induced by the initial injection at a time when they need it most and might help to prevent the complicating respiratory infections prevalent especially during the winter months.

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ALLERGY TO INSULIN

To the Editor:—The article on tolbutamide (Orinase) that appeared in The Journal under New and Nonofficial Drugs (164:1333 [July 20] 1957) was very informative. The indications and contraindications were well presented, but one important point, namely, allergy to insulin in diabetics, was not mentioned. Diabetics who find it difficult or impossible to use insulin due to severe local and general manifestations (about 14% of all diabetics, according to Urbach and Gottlieb: Allergy, ed. 2, New York, Grune & Stratton, Inc., 1946, pp. 344-346) are often referred to allergists. This allergy generally affects patients in the middle-aged or older group, the age group most suitably treated with tolbutamide. Therefore, where allergy to insulin is persistent, this drug may be of extreme value.

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LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Hospital's Liability for Negligent Acts of Its Employees.—This was an action for damages for personal injuries resulting from the alleged negligence of the defendant physician and the defendant hospital. There was a verdict against both defendants and the hospital appealed to the court of appeals of New York.

The plaintiff entered the defendant hospital for correction, by her own physician, of a fissure of the anus. She had been made ready for the operation, before the surgeon's appearance, by the hospital anesthetist and by two nurses also in the employ of the hospital. Preparatory to administering spinal anesthesia, the anesthetist painted the lumbar region of the patient's back with an alcoholic antiseptic, tincture of Zephiran, an inflammable fluid, reddish in color. Again, after induction of the spinal anesthesia, one of the nurses applied the Zephiran solution to the operative area. At that time there were three layers of sheeting under the patient. The nurses were fully aware that the inflammable antiseptic employed was potentially dangerous. They acknowledged that they had been instructed not only to exercise care to see that none of the fluid dropped on the linen but to inspect it and remove any that had become stained or contaminated. However, they made no inspection, and the sheets originally placed under the patient remained on the table throughout the operation. The surgeon was not in the operating room when the antiseptic was applied and at least 15 minutes elapsed before he initiated the preoperative draping process. The draping completed, the doctor took a heated electric cautery and touched it to the fissure to mark it before beginning the actual searing of the tissue. There was a "smell of very hot singed linen" and, "without waiting to see a flame or smoke," he doused the area with water. Assured that the fire was out, he proceeded with the operation. Subsequent examination of the patient revealed severe burns on her body and later inspection of the linen revealed several holes burned through the sheet under her.

As is apparent, said the court of appeals, the liability asserted against the hospital is predicated on an independent act or omission of the hospital-employed nurses, and not on any conduct of theirs ordered or directed by a visiting doctor or surgeon or, for that matter, by any physician. The evidence strongly supports the findings, implicit in the jury's verdict, that some of the inflammable Zephiran solution had dropped on the sheet beneath the plaintiff's body, that it had left a stain discoverable upon inspection, that the nurses in attendance had had full opportunity, before the beginning of the operation, to remove the stained linen and that the solution, which had dropped on the sheet, had given off gaseous vapor that ignited upon contact with the heated cautery. In the light of these facts, the jury was thoroughly justified in concluding that the failure of the nurses to remove the contaminated vapor-producing linen constituted the plainest sort of negligence. The hospital contended, however, that such negligence occurred during the performance of a "medical" act and, accordingly, under the so-called Schloendorff rule, the doctrine of *respondeat superior* may not be applied to subject it to liability.

The court of appeals admitted that there had been a great deal of difficulty in differentiating between the "medical" and the "administrative" in applying the Schloendorff rule. It refused to do so in this case but, instead, decided to review the rule itself. The distinctions necessary under the rule were the result of "a judicial policy of compromise between the doctrines of *respondeat superior* and total immunity for charitable institutions." The court, therefore, reviewed the basis for the immunity rule and concluded that it is no longer supportable. The doctrine of *respondeat superior*, said the court, is grounded on firm principles of law and justice. Liability is the rule, immunity the exception. It is not too much to expect that those who serve and minister to members of the public should do so, as do all others, subject to that principle and within the obligation not to injure through carelessness. It is not alone good morals but sound law that individuals and organizations should be just before they are generous, and there is no reason why that should not apply to charitable hospitals. The concept that the hospital does not undertake to treat the patient, does not undertake to act through its doctors and nurses, but undertakes instead simply to procure them to act upon their own responsibility, no longer reflects the facts, the court continued. Present-day hospitals, as their manner of operation plainly demonstrates, do far more than furnish facilities for treatment. They regularly employ on a salary basis a large staff of physicians, nurses and interns, as well as administrative and manual workers, and they charge patients for medical care and treatment, collecting for such services, if necessary, by legal action. Certainly, the person who avails himself of "hospital facilities" expects that the hospital will attempt to cure him, not that its nurses or other employees will act on their own responsibility. Hospitals should, in short, shoulder the responsibilities borne by everyone else. There is no reason to continue their exemption from the universal rule of *respondeat superior*. The test should be, for these institutions, whether charitable or profit-making, as it is for every other employer, was the person who committed the negligent injury-producing act one of its employees and, if he was, was he acting within the scope of his employment.

The court of appeals accordingly held that the rule of nonliability is out of tune with the life about us and that it should be abandoned. The judgment of the appellate division in favor of the defendant hospital was therefore reversed and the case remanded for a new trial.—*Bing v. Thunig, 143 NE (2) 3 (New York, 1957).*

Malpractice: Standard of Care Required of Dentist.—This was an action for injuries caused by the alleged negligence of the defendant dentist. From a judgment of nonsuit, the plaintiff appealed to the Supreme Court of North Carolina.

In extracting two of the plaintiff's upper molars the defendant broke off the roots, probed for them, but left them imbedded in the jaw bone. Three or four days later the plaintiff returned to the defendant's office in great pain. The defendant at that time opened the infected area and drained a considerable amount of pus and blood. This treatment was repeated two or three times a week over a period of five months. When these treatments failed to clear up the condition, the plaintiff consulted specialists in the eye, ear, nose, and throat who hospitalized her and surgically removed the roots. One of these specialists, testifying for the plaintiff, stated that it is accepted practice to remove a root fragment following an extraction unless only a flake is left. More than a flake was left in the plaintiff's jawbone, however.

A dentist, said the supreme court, is liable if injury approximately results from a want of skill or from a want of its application. One who holds himself out to practice dentistry, by implication agrees to bring to his patient's case a fair, reasonable, and competent degree of skill and to apply that skill with ordinary care and diligence in the exercise of his best judgment. The dentist does not have to possess extraordinary skill and learning nor does he have to exercise the highest possible degree of care. He is liable, however, if there is a want of ordinary and reasonable care which leads to a bad result. There was expert testimony for the plaintiff that broken roots should be removed at the time of the extraction. That infection in and around the broken roots should be allowed to continue for five months with two or three weekly treatments which did nothing more than drain the infected area, would, said the court, seem to be enough to permit the plaintiff to submit her case to the jury. Accordingly, the judgment of nonsuit in favor of the defendant dentist was reversed. *Hazelwood v. Adams, 95 S.E. (2d) 917 (N. C., 1957).*

MEDICAL FILM REVIEWS

The Hepato-Jugular Reflux: A Helpful Sign in Diagnosis and Treatment of Congestive Heart Failure: 16 mm., color, sound, showing time 15 minutes. Prepared by J. Marion Bryant, M.D., New York. Procurable on loan from Wyeth Laboratories, Philadelphia 1.

The purpose of this film is to demonstrate the bedside use of the hepatojugular reflux and to give a simplified explanation of the reflux's significance in the diagnosis and treatment of congestive heart failure. This distention of the neck veins when pressure is applied over the liver is a physical sign of congestive heart failure which appears much earlier than the conventional classic signs and symptoms of heart failure. It was originally described by William Pasteur in 1885, and subsequently has been mentioned in many textbooks and articles. However, detailed instructions to enable the practitioner to use this maneuver are not available at present in the medical literature. This is an unusually good film which is self-explanatory. The photography is excellent and the direction and organization are superior. It is highly recommended for general practitioners and also would be of interest to cardiologists, internists, medical students, residents, and interns who have not had recent reviews on the subject.

Immediate Postoperative Care: 16 mm., color, sound, showing time 27 minutes. Prepared by Frank Glenn, M.D., John M. Beal, M.D., and Joseph Artusio Jr., M.D., New York. Produced in 1956 by Billy Burke Productions, Hollywood, for and procurable on loan from E. R. Squibb and Sons, Division of Olin Mathieson Chemical Corporation, 745 Fifth Ave., New York 22.

This film shows a wide variety of procedures, equipment, drugs, and special skills required to provide patients with the same caliber of care during the immediate postoperative period that they received during the operation. The film begins with scenes that apply to all patients: maintenance of a clear airway; observation of vital signs; various techniques of providing oxygen; control of pain; fluid therapy and blood replacement; the use of suction; and special recovery room procedures and records. Then portions of different surgical procedures such as urologic, intrathoracic, gastrointestinal, biliary tract, and others are shown to help the viewer understand the reason for the related recovery room procedures described. The subject is presented more from the standpoint of scope rather than actual techniques. The color photography and narration are excellent; however some of the surgical techniques should have been omitted, and more of the more common techniques of the postoperative period could have been illustrated. The film is suitable for showing to medical students, nurses, interns, residents, hospital administrators, and surgeons.

ILLUSTRATED FILM REVIEWS

Illustrated reviews of current films will appear when possible as a regular feature in The Journal. *They will consist of an introduction by the author followed by a pictorial digest of actual frame enlargements selected as key points of the film. The written review of this film appears on page 280 of this issue.*

Ralph P. Creer, *Director*
Motion Pictures and Medical Television
Council on Scientific Assembly.

THE HEPATO-JUGULAR REFLUX

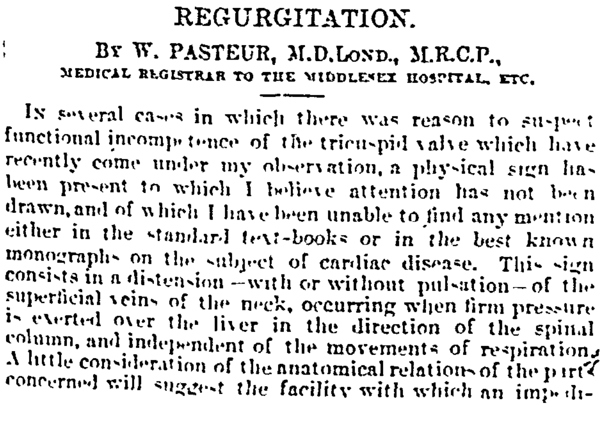
A HELPFUL SIGN IN THE DIAGNOSIS AND TREATMENT OF CONGESTIVE HEART FAILURE

J. Marion Bryant, M.D., New York

The hepatojugular reflux is a reliable but neglected physical sign which appears earlier in the course of congestive heart failure than the conventional signs and symptoms. In 1885, Pasteur originally described this sign as a manifestation of tricuspid regurgitation. However, experience has shown that it is present with heart failure of all etiologies.

The hepatojugular reflux, as presently defined, consists of a distention of the neck veins when pressure is applied over the liver. With a competent heart, pressure on the liver does not elevate the venous blood level in the neck veins when the subjects are in the semirecumbent position. The competent heart promptly increases its output, in response to an increase in venous return, and thus prevents a rise in general venous pressure. In the presence of congestive heart failure, pressure applied to the liver causes a sustained rise of the venous pressure that is prominently reflected by distention of the superficial, and elevation of the pulsating level of the deep, neck veins. The impaired heart is unable to respond to an increase in venous return by an increase in its output; therefore, the venous pressure rises.

Measurements of venous pressure, per se, may not unequivocally disclose minor grades of heart failure. However, the hepatojugular reflux will often indicate the presence of failure before symptoms or other signs become obvious. The disappearance or diminution of the hepatojugular reflux provides a practical end-point of optimal or maximum therapeutic effect.



NOTE ON A
NEW PHYSICAL SIGN OF TRICUSPID REGURGITATION.

BY W. PASTEUR, M.D.LOND., M.R.C.P.,
MEDICAL REGISTRAR TO THE MIDDLESEX HOSPITAL, ETC.

IN several cases in which there was reason to suspect functional incompetence of the tricuspid valve which have recently come under my observation, a physical sign has been present to which I believe attention has not been drawn, and of which I have been unable to find any mention either in the standard text-books or in the best known monographs on the subject of cardiac disease. This sign consists in a distension—with or without pulsation—of the superficial veins of the neck, occurring when firm pressure is exerted over the liver in the direction of the spinal column, and independent of the movements of respiration. A little consideration of the anatomical relations of the parts concerned will suggest the facility with which an impedi-

Fig. 1.—The hepatojugular reflux was originally reported as a manifestation of tricuspid regurgitation by William Pasteur.

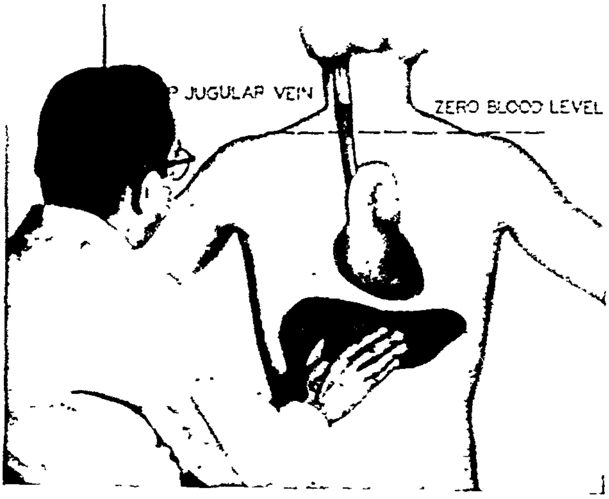


Fig. 2.—This sign consists of an elevation of the pulsating level in the deep neck veins or distention of the superficial neck veins when pressure is exerted over the liver.

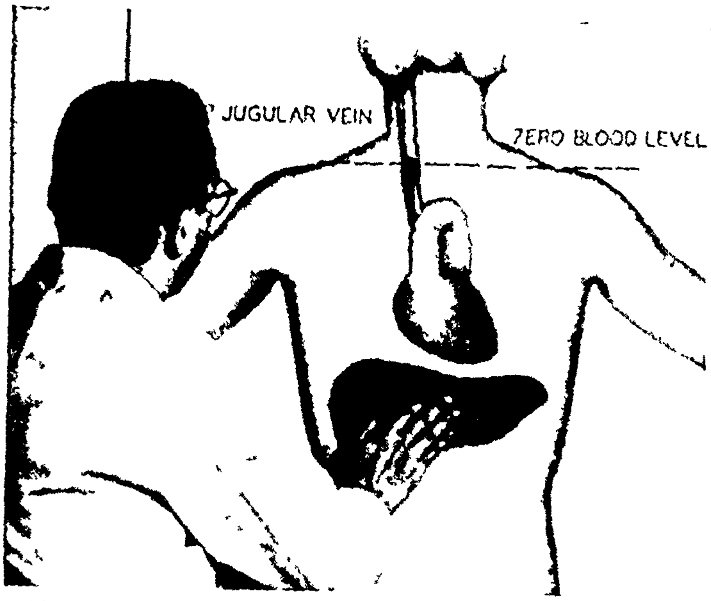


Fig. 3.—In the normal subject, pressure applied to the liver does not cause a rise in the venous blood level.

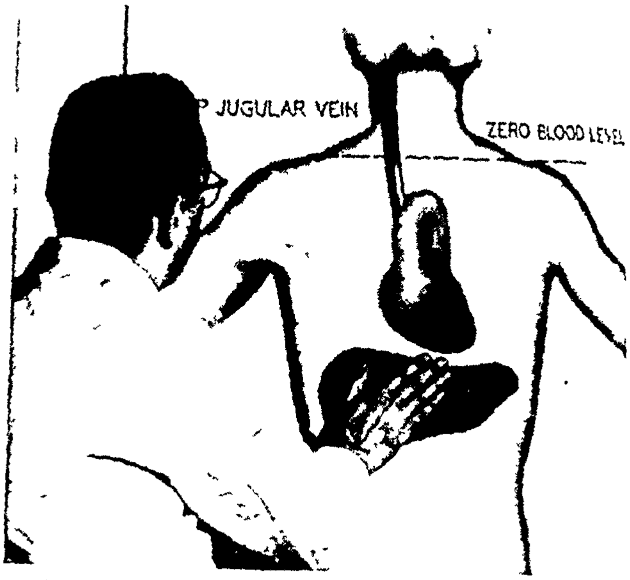


Fig. 4.—With heart failure, pressure on the congested liver produces a sustained rise of the venous level in the neck veins.

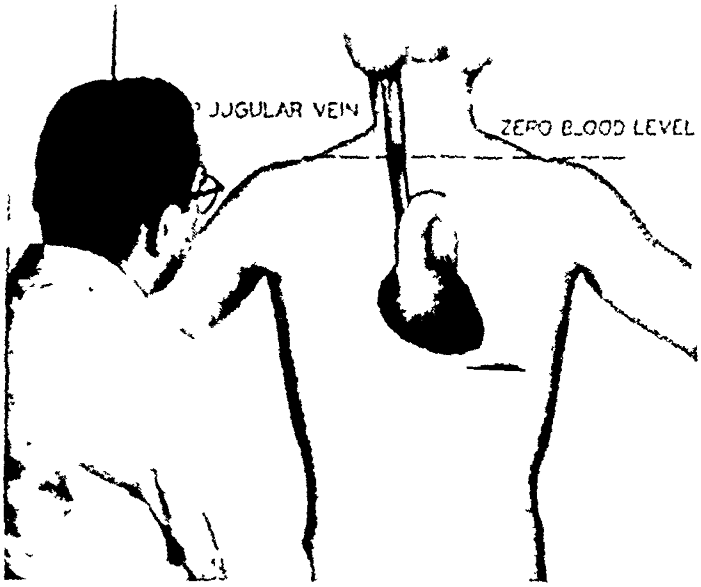


Fig. 5.—As pressure on the liver is released the venous level falls.

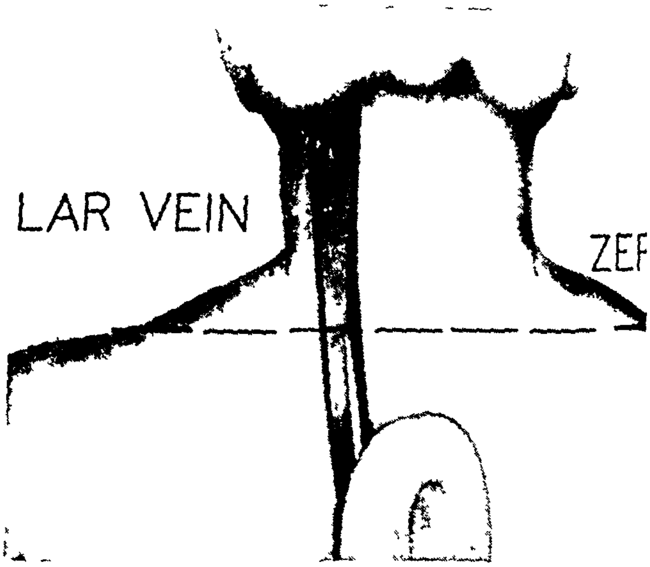


Fig. 6.—A close-up view of the neck during hepatic pressure demonstrates distention of the veins with the subject in the upright position. The motion picture shows the superior portion of the blood column in the deep veins pulsating

Fig. 7.—Venous pulsation is most commonly limited to the internal jugular veins and is recognized by the character of the movement communicated to the structures covering the veins.

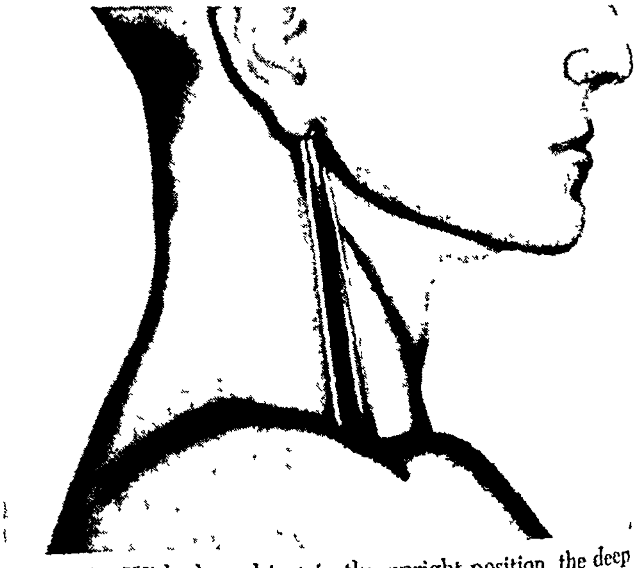


Fig. 8.—With the subject in the upright position, the deep vein pulse has a simple up-and-down movement, rather than a true expansile pulsation.

Fig. 9.—With the subject in the supine position the deep neck veins acquire a rippling, wave-like motion along the entire length of the neck.

Fig. 10.—Careful positioning and observation will demonstrate venous pulsations in most patients.

Fig. 11.—Venous and arterial pulsations are easily differentiated. The venous pulse can be eliminated by applying gentle pressure at the base of the neck without disturbing the arterial pulsations.

Fig. 12.—Elevation of the patient is followed by emptying of the superficial veins, during which the deep vein pulsations move from the jaw to the clavicle.

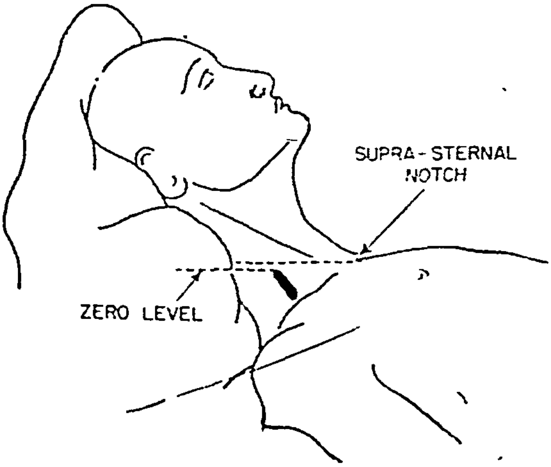


Fig. 13.—Diagram of the supine subject shows that the normal venous zero level lies a little below the suprasternal notch. (From Lewis, T.: Diseases of Heart, ed. 4, London, Macmillan & Co., 1946.)

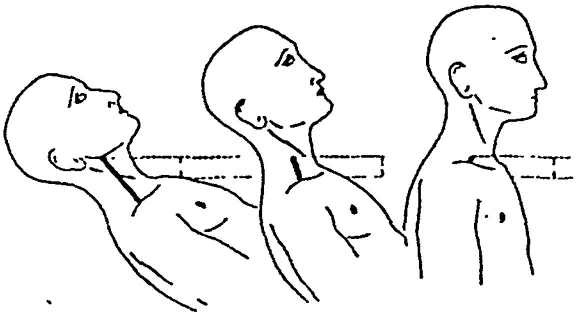


Fig. 14.—With an elevated venous pressure, the vertical distance between the blood level and the suprasternal notch is more or less the same in the semirecumbent, the semisitting, and the upright positions.

those with a negative reaction to the L. E. test were essentially alike. Pathognomonic features of systemic lupus erythematosus were not observed in any patient.

The evidence presented in this study indicates that the L. E. phenonmenon may occur in patients with rheumatoid arthritis as a nonspecific reaction of unknown causation. The diagnosis of systemic lupus erythematosus should not be made in patients with rheumatoid arthritis who have a positive reaction to the L. E. test unless it can be confirmed by other evidence. The prognosis and choice of therapy in such patients should not be based on the results of a single laboratory examination.

Successful Electrical Stimulation of the Heart for 90 Hours in Adams-Stokes Disease. G. Friese. München. med. Wchnschr. 99:811-813 (May 31) 1957 (In German) [Munich, Germany].

The case of a 65-year-old woman with hypertension and myocardial insufficiency is presented. Disturbances in the atrioventricular conduction system caused repeated Adams-Stokes attacks. At first these attacks could be controlled by the administration of sympathicomimetic drugs, but later they became ineffective, and so an electrical pacemaker was used for prolonged periods, for 61 hours, 90 hours, and 14 hours, every time the woman seemed to become moribund. The patient improved under the combined use of the electrical pacemaker and cardiac stimulants. Three months after she was dismissed from the hospital, she was free from cardiac symptoms. The author mentions several investigators who have developed cardiac pacemakers. The one he used in the woman presented here has so far been used effectively in 4 patients.

He believes that the use of the electrical pacemaker is indicated in cardiac arrest of extreme bradycardia in Adams-Stokes disease; in cardiac arrest after exposure to high tension current; in cardiac arrest after defibrillation; in cardiac arrest resulting from excessive doses of digitalis or procaine amide; and during the so-called reflex arrest occurring after surgical and endoscopic interventions. Not every dying heart, however, is amenable to the use of the electrical pacemaker, but only those in which the contractility is still preserved. In patients with Adams-Stokes attacks the pacemaker should be used also when the ventricular automatism has not as yet completely subsided but is so slow that it is not capable of furnishing a minute volume necessary for the preservation of life.

Diagnosis and Differential Diagnosis of Atrial Septal Defects. O. Bayer. Schweiz. med. Wchnschr. 87:535-540 (May 4) 1957 (In German) [Basel, Switzerland].

Bayer emphasizes the fact that the clinical diagnosis of an atrial septal defect has not been made as frequently in the past as one would have expected according to the high incidence of this defect revealed by anatomicopathological reports. There are 3 types of atrial septal defect which must be distinguished anatomically, namely, the persistent ostium secund in the upper portion of the atrial septum, the i dence of which is predominant; the persistent os primum in the basal portion of the septum; and t common atrioventricular canal. The atrial septal d fect, and particularly the persistent ostium secund is frequently associated with a transposition of or several of the pulmonary veins. Hemodyna changes and particularly the heavy extra volume l placed on the right side of the heart and the over ing of the pulmonary circulation determine the cl ical symptomatology of the atrial septal defect. Cya sis may be absent in patients with an uncomplica atrial septal defect or may occur only in the m advanced stages of the disease. Besides the prese of the typical murmur, it is the roentgenogram wh reveals characteristic changes such as enlargement the right side of the heart, the typical prominence the pulmonary arch, and the strongly increased tr ings of the pulmonary vessels with increased auto mous pulsation of the hilar vessels. The electrocard graphic findings vary with the size and the type the defect. Catheterization of the heart is indispe sable for establishing the diagnosis and for the d termination of the shunt volume. Analysis of t pressure curves of the left and the right atrium is considerable aid in the determination of the size the defect. Differential diagnosis of an atrial sep defect from an isolated partial transposition of p monary veins is most difficult. The methods wh have been devised for this purpose, such as the i jection of dyes in the left and right pulmonary teries or the blockade of the right branch of t pulmonary artery with a balloon sound, are eit technically difficult or are associated with a cert factor of insecurity. An exact quantitative diagnosis necessary because of the importance and the serio ness of the surgical intervention.

Experience with the Course and Chemotherap Chronic Pulmonary Histoplasmosis. W. D. Sutl Am. Rev. Tuberc. 75:912-920 (June) 1957 [New Yor

Of 23 men between the ages of 33 and 73 ye with chronic pulmonary histoplasmosis, the diagno was established by cultures of Histoplasma capsu tum from the sputum in 19, and tissue removed operation was the source of H. capsulatum in the remaining patients. The most frequent sympto were cough, mucopurulent sputum, weight loss, che pain, weakness or fatigue, fever, dyspnea on exertio and bloody sputum, in that order. Detailed repo of the cases of 2 patients, 1 with gradual onset and with advanced pulmonary changes, illustrate the ea and the late manifestations of the disease. In the fir patient, the roentgenogram taken at the onset show the development of a very small infiltration; a slig increase in the infiltration appeared 13 months aft the onset, and 20 months after the onset an annul shadow 3 cm. in diameter with a thin wall was see at the level of the second anterior rib with infiltratio tending in a linear manner to the hilum. Calcified dules were present in the hilum and in the lung renchyma. In the second patient, the roentgeno- am taken 15 months after the onset of the disease owed bilateral apical fibrous lesions with multiple vities 1 to 3 cm. in diameter; calcified nodules were esent in both lung fields, both hili, and in the spleen. Surgical and antimicrobial therapy were used sys- matically in attempts to influence favorably the herwise fairly uniform course of the disease. Ex- sion of the area of abnormal tissue was performed 8 patients. Ethyl vanillate in doses of 50 mg. orally r day was given to 5 patients, β-diethyl-aminoethyl- ncholate in doses of 150 to 600 mg. intravenously r day to 7 patients, nystatin to 4 patients, and acti- one, 2-aminostilbamidine, and cycloserine to 1 each. efinite improvement was noted after β-diethyl- ninoethyl-fencholate therapy in 1 patient with rela- vely mild chronic pulmonary histoplasmosis. Dis- minated histoplasmosis was arrested in 2 patients ter treatment, one of whom was given ethyl vanil- te, and the other was given β-diethyl-aminoethyl- ncholate. Toxic symptoms limited the use of all of ese agents in varying degrees. A general conclusion as reached that more potent and less toxic antifungal gents were needed for adequate favorable thera- eutic effect in patients with chronic pulmonary histo- lasmosis.

valuation of Clinical Aids to the Diagnosis of hronic Progressive Cavitary Histoplasmosis. P. H. ehan, C. A. Brasher, H. W. Larsh and M. L. Furco- ow. Am. Rev. Tuberc. 75:938-948 (June) 1957 [New ork].

Of 130 patients with a positive reaction to serologic ests for histoplasmosis (called "serologically proved"), he diagnosis of cavitary histoplasmosis was confirmed y mycologic studies in 33. The observations made in hese 33 cases and in 10 additional mycologically roved cases from another study indicate that the linical and roentgenographic features of cavitary istoplasmosis are indistinguishable from those of avitary tuberculosis. The skin test and the serologic ests for histoplamosis are useful screening aids, but ach has its limitations. Approximately 25% of known patients are nonreactors to the skin test. At least 10% have negative reactions to the serologic tests employed. In the light of these findings it is evident that negative results from a skin or serologic test for histoplasmosis do not exclude the diagnosis of histoplasmosis.

Concomitant infections with Mycobacterium tuberculosis and Histoplasma capsulatum are not uncommon and should be searched for. Such infections may account for some of the failures in the chemotherapy of tuberculosis. Mycologic studies of the sputum in proved cases reveal that H. capsulatum can be readily and repeatedly isolated in these cases. Adequate pathological studies using special fungal stains are necessary to exclude a fungal cause.

SURGERY

A Clinicopathologic Study of Large Benign Gastric Ulcers. J. C. Turner Jr., M. B. Dockerty, J. T. Priestley and M. W. Comfort. Surg. Gynec. & Obst. 104:746-750 (June) 1957 [Chicago].

It was accepted until quite recently that large ulcerating gastric lesions are malignant. In recent years there have been scattered reports on large gastric ulcers that were benign, but few of these have been proved histologically. The authors undertook a clinicopathological study of a relatively large group of such cases. The surgical files of the Mayo Clinic from 1940 through 1954 were examined for examples of chronic, benign gastric ulcer with a diameter of 4 cm. or more and for which gastric resection had been performed. Measurements had been made by the surgical pathologist at the time of the original examination of fresh tissue. During this 15-year period there were 100 cases that met the requirements. Data collected from the records and from gross and microscopic study of the surgical specimens form the basis of this report. The 100 cases of "giant ulcer" represented 4.1% of all cases of benign gastric ulcer treated surgically. The mean age of the patients was 53.2 years, the extremes being 3 months and 73 years. There were 78 males and 22 females. Ninety-three patients presented a symptom complex that was suggestive of peptic ulcer, namely, an intermittent, ulcer type of distress that occurred postprandially and that was relieved by ingestion of food or alkali.

The most frequent clinical diagnosis was that of carcinoma of the stomach, which was made in 45 patients. On the basis of roentgenologic findings, carcinoma was suspected in 40 patients and benign gastric ulcer was correctly diagnosed in 45 patients; various other benign conditions accounted for the remainder of the roentgenologic diagnoses. Gastroscopic examination did not appear to be of value in the diagnosis of large ulcers. The surgeon definitely stated prior to resection his opinion as to whether the lesion was benign or malignant in 24 patients. An erroneous diagnosis of carcinoma was made in 13 of these 24 patients. The Billroth 2 type of gastric resection was the procedure most frequently employed (in 76 patients). Of the 7 surgical deaths, 6 were due to generalized peritonitis; the 7th was due to bronchopneumonia. In 66 of the patients the ulcer had perforated or penetrated. The organ most frequently involved by perforation was the pancreas, the liver being next in frequency. The majority of the ulcers had circular outlines with sharp edges. Microscopic examination of the mucosa adjacent to the ulcer showed varying degrees of gastritis with associated hyperplasia of mucous glands, cystic glandular disorganization, and prominence of foci of lymphatic tissue in the base of the mucosa. The floor of the ulcer consisted of 4 rather indistinct zones; (1) a zone of purulent exudate, (2) a zone of fibrinoid necrosis, (3) a zone of granulation tissue, and (4) a zone of fibrous tissue. The authors conclude that a their typing paper. One girl solved the shorthand problem by wearing thin white cotton gloves. A draftsman started his day at the draftboard with a dozen handkerchiefs piled before him. It was necessary to wipe his hands before drawing every line to prevent smearing the ink.

Medical treatment was first tried on 9 of the early cases. It consisted of atropine by mouth, formaldehyde soaks for the hands, and small doses of x-ray therapy on the palms. These measures failed to produce satisfactory results. Twenty-one patients were subjected to surgical treatment, the 2nd and 3rd thoracic ganglions being removed in the first 4 patients. In the other 17 the ganglions were not removed but the chain was divided at the 3rd or 4th ganglion and sutured outside the thoracic cavity. One of the patients who had undergone ganglionectomy had a recurrence of the sweating 5 years later. Two others stated that their hands became moist in a warm room. The other 18 patients have had completely dry hands for from 1 to 15 years after the operation. The only treatment that offers the patient a complete cure is upper thoracic sympathectomy. Recent improvements in the surgical technique have eliminated the hazards of the operation and the morbidity and shortened the postoperative convalescence period to less than a week.

Cancer of Gastric Mucosa: Early Diagnosis. G. Martín Arribas. Rev. clín. españ. 65:31-36 (April 15) 1957 (In Spanish) [Madrid].

Early diagnosis of gastric cancer is possible when the cancerous lesion is located in the mucosa of the gastric wall or at a depth of not more than 2 mm. At this stage of the disease the patients complain of loss of appetite, fatigability, nervousness, moderate insomnia, and moderate loss of weight. The gastric symptoms consist of a dull gastric pain relieved by ingestion of food. Ingestion of food causes a sensation of gastric fullness which disappears on taking of sodium of bicarbonate. Occasionally the patients complain of severe tenderness on abdominal palpation. The diagnosis is established by roentgen examination, which demonstrates the cancerous lesion, no matter how small. Gastric cancer is classified into three stages: (1) lesions restricted to the parietal gastric mucosa, (2) lesions with lymphatic infiltration, and (3) lesions with hematogenous spread. Gastric cancer is curable in the early period by ample gastric resection. Three cases are reported. Two patients, 52 and 46 years old, respectively, presented themselves with gastric symptoms of 6 months' and 2 months' duration respectively. The roentgen picture of the lesion was minimal but definite. Gastric resection revealed the lesion to be the size of a pea. Histological study of the resected specimens revealed an adenocarcinoma in one and a papilloma with malignant degeneration of the mucosa in the other. The patients are in good health 1½ years and 6 months, respectively, after the operation. The third patient, a 74-year-old man, complained of symptoms of 2 years' duration. The roentgen picture show a cancerous lesion of the type of an encased ni There was lymph node involvement. Histolog study of the gastrectomized specimen showed that t line of resection passed just below the border of t lesion. The surgical treatment of cases of this ty should consist of a total gastrectomy with resection o the lower pole of the esophagus and a splenecto

The Surgical Treatment of Congenital Valvular Pu monary Stenosis Under Direct Vision During Hypothermia. E. Derra and F. Loogen. German M. Mont 2:129-132 (May) 1957 (In English) [Stuttgart, Germany].

Since the end of 1955, 9 male and 13 female pa tients between the ages of 5 and 44 years with co genital valvular pulmonary stenosis who had bee admitted to the surgical department of the Academ of Medicine in Düsseldorf, Germany, underwent su gery by direct vision on the open heart as describe by Swan in American literature, with the aid o hypothermia of about 30 C (86 F) according t Zindler's technique. The patient is placed in a rubbe suit through which water flows at a temperature o from —3 C (26 F) to +5 C (41 F), and in addition th patient is covered with a wet bath-towel with whic pieces of ice are wrapped up so that the meltin water runs directly down on the patients' skin. O the 22 patients with right ventricular pressures high than 70 mm. Hg, 10 had an isolated pulmona stenosis, 11 had a valvular pulmonary stenosis asso ciated with an atrial septal defect, and 1 had bo valvular pulmonary and infundibular stenosis asso ciated with a small ventricular septal defect. In patients the associated atrial septal defect was close during a second period of circulatory arrest, a fe minutes after the valvulotomy had been successful accomplished.

No significant complications occurred before after the operation, except in 2 patients. One died days postoperatively of a sudden massive hemorrha from a previously unsuspected duodenal ulcer. Th other died on the second postoperative day of multip small pulmonary emboli originating from clots on a endocarditic pulmonary valve. Comparison of pr operative and postoperative measurements of pu monary arterial and right ventricular pressures showe that results were very good in 6 patients with systolic right ventricular–pulmonary arterial pressu gradient of from zero to 10 mm. Hg, good in 7 with gradient of from 11 to 30 mm. Hg, and poor in 2 wit a gradient of more than 70 mm. Hg, although ther was an absolute drop in right ventricular and a ris in pulmonary arterial pressures after valvulotom The differences in the results are explained by th wide variation in the structure of the stenosed valv (the right ventricle was not opened, but the infundib ular portion was explored by finger from above). In some patients there was, in addition to the valvula enosis, a marked narrowing ("waist-like") at the se of the valve which prevented the reconstruction a normal outflow opening.

The advantage of the method used lies in allowing ie to perform an accurate and localized dilatation the valve without undesirable artifacts. Surgical mplications, such as have been reported by various rgeons using Brock's method of valvulotomy, are most unknown if hypothermia is skillfully conucted. The mortality was very low, and only 1 of the deaths could fairly be ascribed to the operation or the hypothermia. The operation can be performed patients of more advanced age than Brock's techque, as it was shown in a 44-year-old patient with ectrocardiographic evidence of myocardial damage ho tolerated the operation well. Surgical intervenon under direct vision also permits the repair of an ssociated atrial septal defect. Surgery by direct sion on the open heart is indicated in patients with ght ventricular systolic pressure at rest of more than 0 mm. Hg or in those with pressure between 70 d 100 mm. Hg in the presence of subjective comlaints or signs such as pronounced right ventricular ypertrophy revealed by the electrocardiogram.

ole and Interpretation of Arteriograms in Atherolerosis and Atherosclerotic Aneurysms. B. Eiseman nd H. U. Waggener. A. M. A. Arch. Surg. 74:934-943 une) 1957 [Chicago].

Radiologic visualization of the aorta or of the great essels of the lower extremities was performed in 134 atients, of whom 33 had atherosclerotic aneurysms nd 101 had obliterative disease. The obliterative rocess in 57 patients was at or distal to the bifurcaon of the common femoral artery. Thirty cubic centieters of 50% sodium acetrizoate (Urokon sodium) as used as contrast medium for abdominal aortogaphy and 20 cc. of 50% sodium acetrizoate for femoral rteriography. The diagnosis of atherosclerotic aneuysm can be made without its angiographic visualizaion, and such studies are now employed only when he indications for operation are in doubt or because f some other complicating factor. Comparison of the ngiographic profile of arterial aneurysms and their perative appearance in the 33 patients emphasized he limitations of the method in predicting the size of he aneurysm, the thickness of the organized thromus trapped beneath the concentric fibrotic peels of vhich the aneurysm is composed, and the consistency f the thrombus.

Any patient with obliterative arterial disease who. fter thorough clinical study, is a reasonable candidate or direct arterial surgery should have arteriographic isualization of the involved vessels. Such studies may urnish accurate data as to the level of arterial occlusion, the length of the occlusive process, its degree of encroachment on the lumen of the vessel, and the legree and location of collateral circulatory pathways and may indicate the condition of the vessels on both sides of the main occluding process. In an occasional case they will confirm or deny a diagnosis of obliterative disease that normally can be made on clinical grounds alone. The discrepancy between angiograms and the operative appearance of an atherosclerotic lesion, however, emphasizes that marked abnormal changes occur prior to their angiographic appearance and that both the length of the obliterative lesion and the degree of luminal involvement characteristically are underestimated by such studies. It is because of this discrepancy that surgical exploration of the distal artery is routinely performed as the first part of the direct surgical approach to atherosclerotic obliterative disease when its segmental nature is in doubt. Surgical exploration of the distal vessels (superficial femoral or popliteal artery) precluded further surgery in 12 of the 134 patients. In 5 other patients arteriography distal to the main point of obstruction showed evidence of such diffuse peripheral disease that further futile surgical interference was avoided.

Angiographic and operative changes similar to those observed in patients with atherosclerosis were found in the major vessels of the lower extremities in 4 of 8 patients with microscopically proved thromboangiitis obliterans (Buerger's disease). The unexpected angiographic finding of involvement of large vessels in patients with thromboangiitis obliterans complicates the differentiation of the latter disease from atherosclerosis, and the question arises whether thromboangiitis obliterans and atherosclerosis do not represent 2 variants of the same disease.

Problems in the Diagnosis and Treatment of Gas Gangrene. W. A. Altemeier. W. R. Culbertson, M. Vetto and W. Cole. A. M. A. Arch. Surg. 74:839-845 (June) 1957 [Chicago].

The authors report on 42 patients with clostridial myositis (gas gangrene). Clostridium welchii, the most important causative micro-organism, was present in all but 3 of the 42 patients, either alone or in combination with Cl. novyi, Cl. sporogenes and Cl. sordellii The interval between injury and the development of the lesion was variable, being as short as 6 hours in wounds associated with gross devitalization and contamination of muscle. The average incubation period was 53 hours. Pain was the earliest and most important symptom, being secondary to the rapid infiltration of the infected muscle by edema and gas. Rapidity and feebleness of the pulse usually followed the onset of pain and were characteristically out of all proportion to the elevation of the temperature. The average pulse rate at the time of diagnosis was 118, and the extremes were 100 and 160. Early, the blood pressure was normal or slightly elevated. Later, it became significantly lowered, falling precipitously in some patients to 40 mm. Hg or less. The temperature elevation in the early stages varied considerably between 97 F (36 C) and 107 F (41.8 C). Fever was not, therefore, a reliable index of the severity and extent of the infectious progress. A low or subnormal temperature associated with a markedly rapid pulse was indicative of a grave prognosis. A state of severe septic shock with anuria occurred in 5 patients. The usual malar flush associated with pyogenic infections was replaced by a peculiar grayish pallor. The mental state was often one of apathy and indifference. Stupor, delirium, and coma were late symptoms of an overwhelming infection. The early appearance of the local lesion, with the overlying skin either white, shiny, and tense or else essentially normal, was not that of a pyogenic inflammation. An irritating, dirty, brownish, watery discharge with a peculiar foul odor usually escaped from the wound. As the swelling increased, the overlying skin became dusky and bronze or khaki color in appearance. In far-advanced cases further discoloration occurred and vesicles filled with dark-red fluid appeared on the cutaneous surface. A marked reduction in the number of red blood cells or of the hematocrit or hemoglobin values occurred in many patients; the leukocyte count usually was not elevated above 12,000 to 15,000 per cubic millimeter. Roentgenograms taken at intervals of from 2 to 4 hours may aid in the differentiation of gas in the soft tissues produced by clostridial invasion from that due to mechanical or chemical causes. There are no satisfactory laboratory tests for the early diagnosis of gas gangrene. Any wound in which the presence of clostridial myositis is suspected should be explored surgically without delay. Radical operative treatment, as soon after diagnosis as possible, consists of multiple incisions and fasciotomy for decompression and drainage of the fascial compartments, excision of the involved muscles, or open amputation when necessary. The affected part must be adequately immobilized. Penicillin should be given intravenously in doses of 1 million units or more every 5 hours before and after surgical intervention. Tetracyclines, chlortetracycline or oxytetracycline preferably, should be administered intravenously in doses of 500 mg. every 4 to 6 hours. Polyvalent gas gangrene antitoxin should be administered before and after the operation, 50,000 units being given every 4 to 6 hours for 24 to 48 hours in patients with profound toxemia and hypotension. Secondary operative procedures to facilitate healing or to restore function of the wounded extremity should be delayed until the infection has been completely controlled.

NEUROLOGY & PSYCHIATRY

Subdural Haematoma in An Adult After Air Encephalography. R. G. Robinson. J. Neurol. Neurosurg. & Psychiat. 20:131-132 (May) 1957 [London].

The 48-year-old patient whose history is reported had fallen down some steps 18 months before and at that time had been unconscious for 4 hours. Two weeks later dull headaches at the back of the head began and persisted. There had been 4 attacks in this period when both his arms had been useless. On examination, he was depressed and somewhat agitated. The optic disk margins were blurred. He had a dubious weakness of the left arm. Radiographs of the skull were normal. On Feb. 14, a right carotid arteriogram was normal, and on Feb. 18 a lumbar encephalogram was done with 40 ml. of air. This was considered to be normal. On Feb. 26 the headaches were much worse, and he had a sudden short period of blindness. The next day he had poor upward gaze, slight left facial weakness, weakness of the left arm, and increased tendon jerks in the left arm and right leg; the right plantar response was extensor. On March 4 he was very drowsy, the left pupil was fixed and dilated, there was a left ptosis, and the left plantar response was extensor. A left carotid arteriogram showed that the left cerebral vessels were displaced to the left by a right-sided mass. On March 5, ventriculography was done by posterior bur holes under local anesthesia. The radiographs showed a large right sided mass. A right midparietal bur hole was made and a large subdural hematoma was evacuated. The brain expanded, but the patient died that night.

This patient died because it was not realized soon enough that he might have a subdural hematoma as a result of the encephalogram. Earlier treatment would have saved him. It was thought that he had a midbrain tumor which had escaped radiologic recognition. The physician whose patient deteriorates after encephalography is in a quandary. He is naturally reluctant to inflict further diagnostic procedures on his patient. The probability is that the patient had some untreatable condition. In rare cases the investigation has precipitated a subdural hematoma, and if there are any such doubts then the necessary bur holes should be made forthwith. It is possible that this complication is commoner than has been reported.

The Occurrence of Epileptic Fits in Leucotomized Patients Receiving Chlorpromazine Therapy. D. W Liddell and N. Retterstöl. J. Neurol. Neurosurg. & Psychiat. 20:105-107 (May) 1957 [London].

The authors used chlorpromazine in doses of from 100 to 600 mg. daily in 75 mentally disturbed patients. Twenty-one of these patients had previously undergone prefrontal leukotomy but still showed behavior disorders. Epileptic fits developed during chlorpromazine treatment in 7 of the previously leukotomized patients. These 7 patients had also previously received electroconvulsive therapy, but so had all of the other patients, who had not undergone leukotomy. The epilepsy of the 7 patients, one of whom died in status epilepticus, seemed closely related to the chlorpromazine medication. In 5 of the patients the fits occurred a few days after the treatment was started and in patient a few days after the treatment was discontinued. In 2 patients the fits were mainly unilateral. Five of the patients had not had epileptic fits after the operation, while the remaining 2 had had no fits for a period varying from 2½ to 4½ years. Electro ncephalographic investigations demonstrated that the sturbances arose frontally, and a focus of epileptic ctivity was found in one or other or both frontal bes. The authors suggest that when chlorpromazine given to patients who have undergone leukotomy, should be combined with antiepileptic treatment.

n Static Atactic Functional Disorders Caused by lcohol: A Comparative Study of Different Beverages. . A. Pihkanen. Quart. J. Stud. Alcohol 18:183-189 une) 1957 [New Haven, Conn.].

To study the static atactic swaying due to alcohol toxication the author carried out a series of experiments, applying the so-called modified Romberg test, ascertain the degree of static ataxia caused by two perimental beverages, namely, Finnish blended randy containing 32.6% alcohol by weight, and beer ntaining 3.6% alcohol by weight. The test dose in ch case was 1 Gm. of absolute alcohol per kilogram body weight, in the form of either blended Finnish randy or beer, divided into 6 equal, regularly spaced rinks taken on an empty stomach during the first 60 inutes of the experiment. Besides certain other tests, e quantative Romberg test was performed at the eginning of the experiment and again after 60, 120, d 240 minutes. The subjects were 12 men, all volunteers, varying in age from 22 to 43 years. All of them ere moderate users of alcohol. Compared with the redrinking value the increase of swaying in the men ho had taken blended brandy was statistically significant at 60, 120, and 180 minutes. In the beer series, n the other hand, the highest value at 120 minutes ould hardly be considered significantly different from e predrinking value. In the brandy series the maximum disturbance was produced earlier than in the eer series. Further, the maximum in the brandy series as more pronounced, showing (at 60 minutes) an crease in swaying of 131%, whereas the maximum t 120 minutes) of the beer series was only 37% higher an the predrinking value. Individual differences in action were considerable. The question of the correlation between blood alcohol and swaying requires rther investigation.

Meralgia Paresthetica. H. Stevens. A. M. A. Arch. Neurol. & Psychiat. 77:557-574 (June) 1957 [Chicago].

The symptoms of meralgia paresthetica are pain, numbness, itching, or other dysesthesias in the distribution of the lateral femoral cutaneous nerve of the thigh, that is, over the anterolateral aspect of the thigh, usually in an elliptical patch and usually unilateral. The perception of pinprick and touch is often diminished or lost. There is no motor disturbance; the lateral femoral cutaneous nerve is entirely sensory. The author reviews literature reports and reports observations on 42 patients with meralgia paresthetica, encountered over a period of 7 years. Only 16 were referred for neurological examination, primarily for sensory defects involving the thigh. In the other 26 the disease was discovered by inquiry into the presence of dysesthesia of the thigh and by direction of the sensory examination to this area. The patient with meralgia paresthetica may be seen first by the general practitioner, internist, orthopedist, obstetrician, or surgeon. Meralgia paresthetica is common, it occurs through a wide range of ages, and it is almost always benign and rarely due to sinister disease. However, a careful neurological and physical examination is required to rule out causes other than nonspecific neuritis, e. g., neoplastic or degenerative disease. The diagnosis of idiopathic meralgia paresthetica should be suspected (1) if the area of objective or subjective sensory defect exceeds the well-circumscribed area of distribution of the lateral femoral cutaneous nerve, (2) if other neurological signs or symptoms coexist, and (3) if there is a history of intra-abdominal disease. The last has been known to implicate the nerve, and this may be a manifestation of intra-abdominal or intrapelvic disease.

Many causes have been suggested for meralgia paresthetica in the literature, and the author believes that some deserve further comment, particularly those observations that suggest mechanical forces affecting the lateral femoral cutaneous nerve at or near the inguinal ligament or iliac crest. Dissection of the lateral femoral cutaneous nerve of the thigh in 47 cadavers revealed multiple variations, but none that would necessarily cause vulnerability to meralgia paresthetica. Treatment in the series of patients reviewed consisted exclusively of laissez-faire management. The benign nature of the mononeuritis was explained and the patient reassured. Contrary to the recommendation of many authors, surgery was not advised. Follow-up examinations of the patients with classic meralgia paresthetica justifies this position. The prognosis varied, but in most the dysesthesia persisted, being often intermittent and occasionally precipitated by standing, walking, or pregnancy. It was rarely distressing or disabling.

A Two-Year Comparative Study of Ataraxics in Neuropsychiatric Patients. V. M. Pennington. J. Am. Geriatrics Soc. 5:421-429 (April) 1957 [Baltimore].

Clinical trials of ataraxic drugs have been conducted on 2,360 neuropsychiatric patients including those with schizophrenia, manic-depressive psychosis, epilepsy, Huntington's chorea, meningoencephalitis syphilitica, and senile and arteriosclerotic psychoses. Of 350 patients, who had received 11,320 shock treatments in the course of a year, selected from among 451 patients whose disease was chronic, 20% (70) were allowed to go home, all save a very few returning to the hospital when the effect of shock therapy wore off. Six months treatment with reserpine enabled 42.8% (150) to return home, only 20% (30) returning to the hospital, most of whom had discontinued the medication. Even those patients remaining in the hospital were noted as improving in clarity of thought, coherence, orientation, rapport with associates, cleanliness, application to gainful occupation, interest in life, pride in self, responsiveness, and ability to live quietly and peacefully. It is remarkable that many of the patients who had spent from 10 to 30 years in the wards for the disturbed and had benefited only slightly from shock and other therapies were still at home 2 years later, still taking the prescribed dosage of reserpine. The side-effects of reserpine included pytalism, tremor, and muscular aches and pains, with 3 patients (0.3%) developing Parkinsonism. Dermatitis caused chlorpromazine therapy to be discontinued in many cases, but no Parkinsonism, agranulcytosis, or jaundice had occurred despite the relatively high dosage.

Meprobamate, an excellent somnifacient and the most popular ataraxic among the patients, was successful in many patients (82%) in that it dispelled delusions and hallucinations and reduced the tension and anxiety that predispose to noisy, assaultive, hyperkinetic behavior. Meprobamate relieved hyperhidrosis and mitigated the acrid odor of sudoral secretion. The whole root of Rauwolfia *serpentina* with side-effects similar to but markedly less than reserpine was successful in patients with senile and arteriosclerotic psychoses. Pipradol, a useful analeptic in conjunction with reserpine and meprobamate, cleared the thinking in arteriosclerotic and confused senile patients; its action, centered in the cortical and subcortical areas, stimulated interest and attention and alleviated depression. Methyl-phenidyl-acetate was effective in apathetic, negativistic, dull, inert individuals, stimulating them to activity and cleanliness. A double-blind study of 5 ataraxic drugs carried out in 196 patients showed the longest duration of beneficial effect with reserpine and the highest rate of improvement with chlorpromazine. Rauwolfia and chlorpromazine had side-effects which were labeled "annoying," while meprobamate and azacyclonol had no side-effects. All of these drugs induced varying degrees of reduction in blood pressure. Since the inauguration of this chemotherapy, no treatment other than supportive psychotherapy has been administered at this institution. All of the patients, including those on the so-called disturbed and violent wards, are quiet and orderly and wear clothing, temporary seclusion being necessary only occasionally.

Electrocardiographic Changes in Patients with Acute Carbon Monoxide Poisoning. A. Myschetzky. Ugesk. læger 119:615-618 (May 16) 1957 (In Danish) [Copenhagen].

Electrocardiographic examination of 67 patients with acute carbon monoxide intoxication revealed changes which were ascribed to the intoxication in 40 patients, of whom 9 were under 50, 10 were between 50 and 60, and 21 were over 60. Fifteen died. The most frequent changes, in the order of their frequency, were abnormalities in the T waves, sinus tachycardia, changes in the S-T segment, and auricular fibrillation or flutter. In some cases the changes disappeared.
19 of the patients with abnormal electrocardiogra
there were also electroencephalographic, clinical,
pathological signs of cerebral injury.

The Scope for Hypnosis in General Practice. A. Fr
Brit. M. J. 1:1323-1328 (June 1) 1957 [London].

Hypnosis in general practice is of necessity sim
and involves sessions of brief duration. Fixed gaz
and verbal suggestion were found to be the m
successful for the induction of hypnosis. The meth
utilized varied with the individual cases with the
ception that no drugs were used. Slight degrees
hypnosis (hypnoidal and light trance) were usua
sufficient but were generally replaced by deeper sta
in the treatment of obsessional and anxiety cases.
degree of hypnosis was unsuccessful, 14%; hypnoi
and light trance, 63%; medium trance, 9%; and d
trance, 14%. In those cases involving no deep-roo
causes or conflicts, light hypnotic state is sufficient
permit removal of the patient's symptoms by sug
tion. Deeper states are required in the treatment
neurotic and psychosomatic disorders, as relaps
characteristic of those groups in whom superfi
treatment has failed to abrogate the causative fac
still partly submerged at the subconscious level.
largest group of patients treated were those
psychosomatic and psychoneurotic disorders, w
the most resistant cases included the obsessional
tients and adult asthmatics. Patients so treated
able to stop taking hypnotic, analgesic, and a
cholinergic drugs or drastically reduce their use,
several patients were able to stop smoking perman
ly. None of the patients exhibited any deterioratio
their original condition as a result of hypnothera

GYNECOLOGY & OBSTETRICS

Evaluation of the Prediabetic State During Pregna
E. R. Carrington, C. R. Shuman and H. S. Reard
Obst. & Gynec. 9:664-669 (June) 1957 [New York

The prediabetic state associated with pregnancy
been recognized of late as an important cause of f
wastage, which is higher in the unrecognized
diabetic than in the patient with well-contro
diabetes. The principal maternal abnormality is hy
glycemia (associated with insulin deficiency) result
from a defective carbohydrate tolerance. This s
may be aggravated by at least 2 hormonal alteratio
increased level of corticosteroids and possible incre
in growth hormone. Patients were selected who ga
history that included any one or more of the followi
(1) family history of diabetes; (2) history of intraute
fetal death; (3) delivery of infants exceeding 4,500 G
(10 lb.); (4) glycosuria during pregnancy; (5) hydra
nios; and (6) repeated abortions or premature labo
Glucose-tolerance tests were regarded as normal wh
the blood sugar level was 120 mg. per 100 cc. or l

in two hours. Fasting values greater than 120 mg. 100 cc. were found in overt diabetes. Patients were sified in 1 of 3 groups depending on the degree of iation from normal pregnancy values: group 1 picious), 120-140 mg. per 100 cc.; group 2 (pre- betic), 140-170 mg. per 100 cc.; group 3 (gestational betes) over 170 mg. per 100 cc. Indications for early very in those patients in whom abnormal curves e discovered in the prenatal period included a sistent abnormality in carbohydrate tolerance in nen whose histories revealed high fetal loss with vious pregnancies, the appearance of a toxemia ch was not readily reversed, or the development of lramnios.

n the authors' series, the fetal mortality rate was % when the prediabetes was discovered early in gnancy and 28.6% when it was discovered late or er delivery. The fetal mortality rate for these women previous pregnancies was 30%. Labor before term urred spontaneously or was induced in 50% of the nen whose prediabetes was diagnosed early.

dometrial Lavage as an Aid in the Diagnosis of rcinoma of the Endometrium. D. G. Morton, J. G. ore and N. Chang. West. J. Surg. 65:113-125 (May- ne) 1957 [Portland, Ore.].

Whereas cytologic study of the vaginal smear has wed of great value in detecting cancer of the cervix an early stage, the vaginal smear has not been very able in the detection of carcinoma of the endo- trium. The authors attempted to obtain representa- samples of material from the endometrial cavitary smearing and cytological study by injecting a small ntity of sterile saline solution into the uterine ity and aspirating the return flow from the posterior ginal fornix. After exposure of the cervix by means a bivalve speculum, an ordinary vaginal smear is de. Mucus and blood are wiped away, and after direction of the uterine cavity has been determined mall cannula is inserted just past the internal os. A inge containing sterile saline solution is attached to end of the cannula, and 3 to 4 cc. of solution is ected into the uterine cavity under low pressure. e cannula is withdrawn, and the fluid allowed to n back into the posterior vaginal fornix, from which is sucked up into the syringe again. It is then de- sited in a centrifuge tube and sent to the laboratory. mples of the centrifuged sediment are sucked up ith a micropipette and smeared on slides previously eated with egg albumin. The slides are fixed in the her-alcohol solution for 30 seconds. If the specimen bloody, the slides are removed and treated with 10 *N* hydrochloric acid solution for 1 minute and en returned to the fixative. The fixed slides are ained by Papanicolaou's technique.

Since the initiation of the project, 797 lavages have een obtained from 673 patients. The method accu- ately diagnosed cancer in the uterine cavity in 24 of 6 histologically proved cases. There were 11 false-suggestive or false-positive cases. In 655 instances both a lavage specimen and a vaginal smear were available for study. Endometrial cells were identified in 553 of the lavage specimens, or 84.4%, while such cells were found in only 52 of the vaginal smears, or 7.9%. These results indicated clearly the superiority of endometrial lavage as a sampling technique for endometrial cells and suggested that the probability of finding positive cells in cases of adenocarcinoma of the endometrium would be greatly enhanced. The authors conclude that this diagnostic technique could be of great assistance in the management of irregular and excessive menstruation and of intermenstrual spotting at or near the menopause.

Occult Carcinoma of Breast. A. F. Nogues. Obst. & ginec. latino-am. 15:117-121 (March-April) 1957 (In Spanish) [Buenos Aires].

Undetectable primary carcinoma of the breast is clinically recognized by the presence of a unilateral or bilateral axillary enlarged lymph node. The author reports 6 such cases in women between the ages of 41 and 70 years. The enlarged axillary node was noted by the patient 1 month to 2½ years prior to the consultation. It was apparently static or slowly growing. The breast was apparently normal, although slightly enlarged. In one patient there was a blood discharge from the nipple. A diagnosis of secondary cancer from inapparent cancer of the breast was made by histological study of the resected lymph node, by biopsy of the breast, or by examination of the bloody secretion from the nipple. A radical operation was performed in 5 cases. Histological examination of the removed specimen showed that the tumor of the breast was scirrhous in 2 patients, medullary in 1, comedocarcinoma in 1, and sarcoma in 1. This type of cancer is very malignant. The treatment consists of a radical mastectomy followed by postoperative, deep roentgentherapy.

The Hypophysectomy Program for Advanced Breast Cancer: A Preliminary Report. V. P. Hollander, G. Crutchfield and J. Martinez. Virginia M. Month. 84: 286-289 (June) 1957 [Richmond].

Approximately half of the patients with breast cancer have tumors that are sensitive to estrogen and should benefit by the removal of this growth stimulant. Oophorectomy removes the major source of estrogen in premenopausal women, whereas the adrenal cortex is a significant source of estrogen in postmenopausal patients or in those with a recurrence after castration. Hypophysectomy removes the source of the follicle-stimulating hormone and corticotropin, the hormones that stimulate the ovary and the adrenal to estrogen production. It is possible that some remissions after hypophysectomy are due to the removal of the growth hormone, prolactin, or some other pituitary factor. It is difficult to select patients for hypophysectomy. It might appear advisable to defer ablative surgery as long as possible and then perform adrenalectomy first, reserving hypophysectomy for those patients in whom adrenalectomy fails or in whom it is followed by relapse. Hypophysectomy can be done as the first palliative treatment for the generalized disease. Because endocrine ablative procedures have given higher remission rates than treatment with exogenous steroid hormones, the authors have reserved the latter for the treatment of relapses after ablative surgery.

All 9 patients reviewed in this paper had progressive metastatic disease. Three of them had not as yet reached the menopause, and castration had produced unsatisfactory results. Preoperative care in hypophysectomy is essentially the same as for bilateral adrenalectomy. The night before the operation the patient is given 6 intramuscular injections of 50 mg. of cortisone acetate at hourly intervals. On the morning of the operation 100 mg. of cortisone acetate is given by mouth. The hypophysectomy is carried out through a transfrontal approach. The histories of 2 women in whom the hypophysectomy achieved striking objective improvement are presented. Two of the 9 patients died after the operation; one patient failed to respond; 4 achieved striking remissions; and in 2 the pain was greatly relieved, but they will require further evaluation. The results obtained encouraged the authors to utilize hypophysectomy as a major palliative treatment for advanced breast cancer.

The Hazards of Intrauterine Pessaries: An Evaluation. R. W. Weilerstein. West. J. Surg. 65:157-160 (May-June) 1957 [Portland, Ore.].

The Federal Food and Drug Administration regulates interstate commerce in dangerous or misbranded devices. To assist in the evaluation of the status of the intrauterine pessary, questionnaires were sent to 187 diplomates of the American Board of Obstetrics and Gynecology. Their replies described not only the gold-plated and latex-covered pessaries but also glass, silver, aluminum, and hard rubber stem intracervical and ring intrauterine pessaries which they had found on surgery in uteri of patients made ill by their presence. Replies were received from 129 of the 187 gynecologists, of whom 101 were definitely opposed to the continued distribution of intracervical pessaries for any medical use; 18 were opposed to their use but felt that under certain qualifying circumstances they could be legitimately used; and 9 were favorable to their continued use but felt that some restriction as to their use should be observed. Only one physician stated unqualifiedly that he considered them to be safe and efficacious.

The replies indicated that 179 women suffered severe illness or injury due to intracervical or intrauterine contraceptive pessaries. The reported effects included infection and its complications, imbedding, irritation, perforation, migration, coincident ectopic pregnancies, and cervical carcinoma. In 2 of these the
pessary was imbedded in the cancer. The author b
lieves that the limited indications for the use of t
intracervical pessary in the surgical treatment
dysmenorrhea or anteflexion of the uterus can be r
by using other methods than the intracervical, in
uterine stem, or wishbone pessary, which is wid
sold for contraceptive purposes. The consensus
experts overwhelmingly condemns the continued d
tribution of intracervical and intrauterine pessaries f
any medical purpose.

**Hyperthyroidism and Pregnancy: Clinical and Stati
cal Observations on 46 Patients.** P. Battarino and
Capodacqua. Minerva ginec. 9:263-269 (April 15) 19
(In Italian) [Turin, Italy].

Forty-six pregnant women with hyperthyroidi
were admitted to a hospital in Bari during the peri
1925 to 1955. The same hospital received during t
same period a total of 45,057 pregnant women. Eig
een patients had exophthalmos, 14 a simple goiter
a cystic goiter, 7 other forms of hyperthyroidism, a
6 had been subjected to thyroidectomy some time
fore pregnancy. The average age of the patients
31.1 years. About one-fourth of the patients
primiparas. Seven patients, 4 with exophthalmos
with hyperthyroid goiter, and 1 with another form
hyperthyroidism, had a premature delivery. Gest
occurred in 7 patients with exophthalmos. Three
tients had cartiopathy, 2 patients had goiter, and 1
exophthalmos. Pregnancy had a bad effect on hyp
thyroidism in 11 patients and a good effect in 1 pati
Seven of the 11 patients had exophthalmos. The c
dition remained stationary in the remaining patie
Hyperemesis caused therapeutic interruption of
pregnancy in 2 patients. A total of 25 fetuses
delivered. Five of them died. Five patients ha
pathological puerperium. Thirty-six patients
subjected to medical treatment: 1 improved, 27
mained stationary, and 8 got worse. The thyroid sy
toms were checked in 4 patients that were subjec
to surgical treatment, but 3 of these patients
abortion. The remaining 6 patients had been subjec
to operation on the thyroid long before they beca
pregnant. Hypothyroidism was not present in th
patients during pregnancy. These 6 patients ha
total of 15 pregnancies, 10 of which were carried
normally; 1 was interrupted during the 7th month, a
4 aborted. Two of the 12 fetuses born alive from th
patients died.

Surgery Alone for Endometrial Carcinoma. E. Sandberg and C. E. McLennan. Obst. & Gynec. 670-675 (June) 1957 [New York].

While radiation (usually intrauterine radiu
coupled with surgery appears to be the favored met
od of treatment of endometrial carcinoma, there a
recent evidences that the advocates of preoperati
radiation are being seriously challenged. One hundr
thirty-three patients with endometrial carcino

ited over a 15-year period form the basis of this re- t. The standard procedure in the surgically treated up of 79 patients was total hysterectomy with iexal excision, including preliminary suture closure he cervix and tubes. Preoperative irradiation of the patients treated with both radium and surgery was cted variously by intrauterine tandem, Y-shaped, 5-portal triangular applicators. Twenty-five patients re treated by irradiation alone, receiving from 4,000 7,200 mg.-hr. of intrauterine radiation. The survival es (irrespective of the type of therapy) were 80.7% l 54.5% for the 5-year and 10-year follow-ups re- ctively. The large discrepancy between the 2 sur- al figures is attributed to death due to intercurrent ease between the 5th and 10th year. This discrep- cy is believed to be enhanced by the age-of-onset tor, for which no statistical compensating device is ilable. Radiation alone gave the poorest results, e to the inherent inability of intrauterine radium destroy cancer within the myometrium or adnexal uctures. Twenty patients whose clinical stage of ease was comparable to that of the women in the nically operable group were treated with radiation me, 55% surviving for 5 years. Of those women iose uteri were removed, 90% survived irrespective whether preoperative radiation was utilized. An un- ually high survival rate (95%) was noted where there is no gross extension of the tumor beyond the intra- lvic generative organs and where tumor in the erative specimen was confined microscopically to e uterus regardless of the depth of myometrial pene- ation. No attempt was made to correlate survival te with uterine size or with tumor differentiation. se of preoperative radiation seems wasteful from the andpoint of the patients' time and money and ap- ars to offer no improvement in prognosis, while sterectomy has been of such import that it is ad- dged the common denominator of successful therapy.

horiocarcinoma of the Uterus with Report of Two ases. E. S. Groseclose. Virginia M. Month. 84:296- 3 (June) 1957 [Richmond].

Choriocarcinoma has been known for years as horionephithelioma, but, because this term is mis- eading, it has been discarded in favor of choriocar- inoma. This highly malignant tumor arises as a nalignant change of the trophoblastic tissue and herefore may develop following a full-term preg- iancy, a miscarriage, an early abortion, or more fre- quently a hydatidiform mole. It is generally accepted hat about 40% of cases of choriocarcinoma develop after a hydatidiform mole, 35% after abortion, and 25% after a full-term pregnancy. Choriocarcinoma is so rare that many large clinics do not have even a single case on record. The author observed 2 women with this form of malignancy in the course of 5 years. Both of these patients died. The first patient, a 49-year-old woman with symptoms of menopause, had an extensive friable hemorrhagic tumor in the uterus with metastases in the sigmoid colon and in the lungs. Friedman's test was persistently negative. In the second patient, a 31-year-old woman, the choriocarcinoma arose 3 years after the expulsion of a hydatid mole. Pulmonary metastases were present, but death probably resulted from a cerebral hemorrhage 2 months after the operation.

Early diagnosis is vital in choriocarcinoma and is accomplished by means of tissue studies, x-ray examination, and hormone tests. The primary and the most frequent symptom of choriocarcinoma is bleeding, and any bleeding after miscarriage or pregnancy should cause suspicion of carcinoma. In some cases, the appearance of metastases in distant organs, especially the lungs, brain, vagina, or vulva, may be the first indication of a choriocarcinoma. This neoplasm most frequently appears as a somewhat circular, circumscribed raised or nodular mass of dark reddish hemorrhagic tissue of grumous consistency, involving some portion of the uterine wall. It may show surface ulceration or present as a smooth, slightly elevated surface. The tumor may also develop within the wall of the uterus (intramural variety) and may not be reached when curettement is done. It is in this variety that the diagnosis is so often missed. The lesion in the uterus may be comparatively small even in the patient who dies from extensive metastases. The primary uterine lesion sometimes undergoes complete regression, and death occurs from widespread metastases. Microscopically, choriocarcinoma is characterized by a disorderly growth of trophoblastic tissue, usually in alveolar fashion, invading the uterine muscle, with a gradual destruction of the myometrium and extensive coagulation necrosis and hemorrhage. The villous pattern usually is soon lost, though slight traces may remain. Both layers of the trophoblast, the Langhans and syncytial, are involved in the invasive process, but in varying degree. The accepted method of treatment is panhysterectomy followed by irradiation therapy. The mortality is high, approximately 70 to 80%. The prognosis is grave in all cases, especially in those with distant metastases.

OPHTHALMOLOGY

Angioid Streaks and General Arterial Disease. H. G. Scheie and T. F. Hogan. A. M. A. Arch. Ophth. 57: 855-868 (June) 1957 [Chicago].

Ten patients are presented to offer evidence of the close relationship between angioid streaks of the retina, pseudoxanthoma elasticum, and clinical signs of widespread vascular disease. All patients had angioid streaks of the retina. Macular degeneration was present in 8. Pseudoxanthoma elasticum was evident in 8 patients. One patient had advanced Paget's disease and another had signs suggestive of this disease. All patients had clinical evidence of arterial disease. Involvement was most marked in the lower extremities. The arteries of the upper extremities were involved in 6 patients. Pulses were diminished or absent. Arterial occlusion of varying degrees was present. X-rays revealed calcification in many of the medium and larger-sized arteries of the extremities. Intermittent claudication was a common complaint. Evidence of cardiac disease and myocardial damage was found in 3 patients. One patient had an aneurysm of the internal carotid artery and another had an aneurysm of each common carotid artery. Calcification was found in the walls of the aneurysms. A patient showed calcification of the choroid plexus of the brain and another calcification of the internal carotid artery. Bilateral calcification of the renal arteries as well as of the celiac axis was seen in another patient. No disturbance in metabolism was demonstrated. The mechanism underlying the degenerative process is obscure. A close relationship of the angioid streaks, pseudoxanthoma elasticum, and generalized arterial disease is emphasized. Physical examination should be carefully carried out on any patient with obscure arterial disease, especially if occlusive in nature. The arterial disease can dominate the clinical picture, or even occur alone, as can angioid streaks of the retina or pseudoxanthoma elasticum.

PEDIATRICS

Congenital Unilateral Multicystic Kidney Associated with Maternal Rubella. E. L. Lipton and L. J. Scordamaglia. J. Pediat. 50:730-733 (June) 1957 [St. Louis].

A congenital unilateral multicystic kidney was found during the first examination on the day of birth in a male infant who was delivered with the aid of low forceps. Surgery was performed on the 6th day of life. The right kidney, liver, pancreas, and other abdominal viscera were examined and considered normal. The operation and subsequent period were grossly uneventful. The infant was discharged on the 14th day of life in excellent condition. Subsequent outpatient examinations revealed normal growth and development. Whether the maternal rubella infection, diagnosed in the first trimester of pregnancy, was etiologically related to the pathology is not known; the association seems rather suggestive in view of the known adverse effects of this disease on the developing fetus. Congenital unilateral multicystic kidney is etiologically, therapeutically, and prognostically unrelated to congenital polycystic kidney disease. The mass may be extirpated if the contralateral kidney is normally functioning, and a normal life span can be assured.

Aminophylline Toxicity. H. Soifer. J. Pediat. 50:657-669 (June) 1957 [St. Louis].

Aminophylline toxicity occurred in 37 pediatric patients with respiratory ailments; 11 died. Aminophylline is a potentially toxic drug that may cause severe reactions or even death, due usually to overdosage or to hypersensitivity. Symptoms of toxicity caused by
aminophylline are chiefly restlessness and frequ
vomiting. More than 50% of the patients develop f
and convulsions. Albuminuria is an inconstant find
Irreversible damage and death occur if the drug is
withdrawn immediately. The rectal administratio
the drug in suppository form is recommended, s
aminophylline is not so effective when given or
appears to be most toxic when given intravenou
and is painful and irritating to the tissues when g
intramuscularly. In order to decrease the possib
of overdosage, aminophylline should be made a
able in 50-mg. and 100-mg. strengths. The simult
ous administration of aminophylline and ephed
appears to be contraindicated. A suggested dosag
aminophylline given rectally is 5 mg. per kilogra
body weight every 8 hours. The treatment of am
phylline poisoning is purely symptomatic; it inv
immediate withdrawal of the drug and the use o
propriate supportive measures.

**Patients with Infantile Primary Tuberculosis Tre
with Protected Cortisone Therapy.** A. Del Prin
E. Canova and R. Potenza. Lotta contro tuberc
80-89 (Jan.-Feb.) 1957 (In Italian) [Rome, Italy].

Fifteen children, 2 to 12 years old, 3 with ade
athy, 9 with various forms of tuberculosis, and 3
exudative pleurisy were treated with cortisone
bined with antibiotics. Each child received a do
0.5 mg. per kilogram of body weight per da
prednisolone combined with 20 mg. of strepto
and 10 mg. of isoniazid per kilogram per day. Pr
solone was administered for an average of 15 da
was discontinued after 7 days in 1 child and aft
days in 2 children. Suspension of cortisone the
caused the return of the symptoms present befor
treatment in 1 child. A second course of predniso
which lasted 15 days had a beneficial effect in
child. A first course of treatment did not have n
effect on 1 patient, but a second course given af
months had a marked beneficial effect. Antib
therapy was always continued after the suspensio
cortisone therapy. Best results were observed
after 2 or 3 days of treatment in the children
pleurisy, and good results were obtained in the
dren with adenopathy. The treatment had no ef
on one child with simple tracheobronchial adenopa
Improvement of the general condition of the pati
was obtained in a short time: the fever dropped
the body weight increased. Erythrosedimentation
became normal even before the suspension of
treatment. Glycemia and diuresis were always nor
All of the children treated are close to recovery.

**Congenital Afibrinogenemia: Report on a New-b
Infant Without Fibrinogen.** B. J. Grossman and R.
Carter. J. Pediat. 50:708-713 (June) 1957 [St. Lou

A report is made on a newborn infant with conge
tal afibrinogenemia because of the rarity of the dise
and the remarkable coagulation defects. The bab

ivery was described as a "very difficult midforceps." e mother's Kahn test was negative and her blood e was A, Rh positive. The infant was mature. newhat pale, and in acute distress. Examination led a diagnosis of congenital afibrinogenemia. Despite equate therapy the baby died at 13 hours of age. e 2 brothers of the baby have been reported as ving epistaxis but no other hemorrhagic manifestans. There is no history of bleeding in the father. A ect in the coagulation mechanism of the father and 2 brothers were observed. The increased clotting nes indicated a reduction in fibrinogen. Only 31 tients with apparent congenital absence of fibrino- n have been reported to date. The most striking and aracteristic findings in all patients is the incoagula- ity of the blood since birth. The hemorrhagic manitations are frequently less severe than those in mophilia. The hereditary pattern of congenital brinogenemia was given some attention. Cousin arriages have occurred in parents or grandparents 7 patients. Siblings with bleeding disorders were und in 7 other patients with congenital afibrino- nemia; hypofibrinogenemia was reported in 1 or ore relatives of 4 patients. The fibrinogen levels have en normal in other families of patients with congeni- l afibrinogenemia. The use of clotting techniques as sensitive means of detecting fibrinogen deficits is scussed.

ongenital Defects in Infants Following Mumps During Pregnancy: A Review of the Literature and a eport of Chorioretinitis Due to Fetal Infection. J. olowach, D. L. Thurston and B. Becker. J. Pediat. :689-694 (June) 1957 [St. Louis].

The relation of maternal mumps to fetal damage is ot as certain as that of the rubella infection in the other during the first months of pregnancy, which ay cause fetal death or congenital malformation. It s been shown that mumps complement-fixing anti- dies readily cross the placenta. Levels for such tibodies are essentially identical in the maternal and rd blood. A 6-month-old girl with congenital chori- etinitis is reported on, and the defect has been tributed to such an infection. Complement fixation d skin testing should be performed 2 months after irth in infants with congenital defects following ma- rnal mumps to establish this causal relationship.

ffect of Phenylalanine-Restricted Diet in Phenylketo- uria II. F. A. Horner, C. W. Streamer, D. E. Clader nd others. A. M. A. J. Dis. Child. 93:615-618 (June) 957 [Chicago].

Six children with phenylketonuria, 2 boys and 4 irls, between the ages of 6 weeks and 4¼ years, 3 of hom had been reported on in a previous paper, were eated with phenylalanine-restricted diets for periods arying from 8 to 22 months. The phenylalanine-free iet consisted of a protein hydrolysate basal mix (4.2 Gm. per kilogram a day), fat in the form of vegetable oil (3 Gm. per kilogram a day), and carbohydrates (10 Gm. per kilogram a day) for 3 weeks. After the initial 3-week period, phenylalanine, in the form of natural protein, was added to the diet in sufficient quantity to maintain the serum phenylalanine level between 3 and 5 mg. per 100 cc. (usually 3 to 8 Gm. of protein a day). Two children who were not placed on the phenylalanine-restricted diet until the 5th year of life showed sustained increments in their intellectual functioning. One of the 2 children treated in the 3rd year of life showed marked acceleration in her developmental pattern, while the other showed little significant change after 14 months of treatment. The remaining 2 patients were newborn infants who were treated since the appearance of phenylketonuria at the age of 6 weeks; they were following a healthy developmental pattern after 21 and 7 months of treatment respectively.

These observations tend to support the newer concept that the mental retardation pattern in phenylketonuria may not be so severe as initially described by Jervis. The treatment of older children with phenylketonuria may prove valuable in some patients in whom sustained improvement of mental function occurs. The treatment of newborn infants with phenylketonuria may prevent the characteristic and profound mental changes often associated with this abnormality. Urine examinations for phenylketonuria in the newborn period apparently may not give positive results before the age of 6 weeks, and negative urinary tests for phenylketonuria may, therefore, be misleading during the neonatal period.

Childhood Accidents and Their Prevention. H. Jacobziner. A. M. A. J. Dis. Child. 93:647-665 (June) 1957 [Chicago].

Three thousand nonfatal accidents in children under supervision in New York City Health Stations were reported between 1951 and 1955, and 1,151 accidental poisonings, fatal and nonfatal, were reported to the poison control center in New York City in 1955. Data regarding the natural history of these accidents, obtained by epidemiologic investigations carried out by the New York City Department of Health, suggest that falls and burns are the primary offenders in the accident group and acetylsalicylic acid (aspirin) and lead are the chief offenders in the accidental poisonings. The boy is more susceptible than the girl, and the nonwhite is more vulnerable than the white. The higher susceptibility in the nonwhite is believed to be a reflection of socioeconomic conditions such as overcrowding and poor housing rather than of inherent and constitutional differences. The kitchen is the most dangerous place and the bedroom is the next most hazardous place in the home. Lack of adult supervision is a deciding contributory factor. Accidents, which are responsible for more deaths in the preschool child than the 10 leading communicable diseases combined, follow an epidemiologic pattern like disease processes and are amenable to control measures. Attention must be focused on the most vulnerable groups with high attack rates and on injurious agents most commonly incriminated.

A careful analysis of each accident indicated that about 95% were preventable. The type of accident is intimately associated with the child's stage of growth and development. Accident proneness was not observed as a pattern. This observation does not confirm findings of other observers. Accident control is a medicosocial community-wide program which must be based on sound epidemiologic principles. Since accidents, like disease conditions, are due not to a single cause but to a variety of conditions and causes, a multidisciplinary approach is essential. Prevention is crucial, and education is the keystone of the program. Through daily contact with families and children, the physician is in a most strategic position to provide health education on safety during his regular visit in the home for the care of the sick. Considerable health education, guidance, and counselling can also be provided during office visits. The physician should also advise on the need for safe and well-supervised recreational activities in public playgrounds. As a leader in the community he can also motivate interested groups, such as parent-teacher associations, health councils, 4-H clubs, the Scouts, and other organizations, in initiating safety and accident prevention programs. Further epidemiologic investigative research is needed, particularly about the emotional and human factors and the psychodynamics involved.

Steroid Therapy in the Nephrotic Syndrome. S. Dundon. J. Irish M. A. 40:135-144 (May) 1957 [Dublin].

Eight children, 6 boys and 2 girls between the ages of 3 and 11 years, with the nephrotic syndrome including proteinuria, hypoproteinemia, edema, and hypercholesteremia were treated with corticotropin (ACTH) given in daily doses of from 80 to 120 mg. for 10 days combined with antibiotic therapy (20 mg. of tetracycline per pound of body weight daily). The effect of the hormone on the proteinuria was good in all patients. Five of the 8 patients became clinically well, with normal blood chemistry and normal composition of urine, for periods of from 3 months to 3 years. Rapid clearing of the protein from the urine was observed. One boy relapsed after such clearing, and clearing recurred in the course of treatment with a daily dose of 5 mg. of prednisolone for 1 week. One of the girls with a 2-year history of edema and proteinuria who had been confined to bed showed striking clinical improvement. She again was able to carry on a normal life and was free from edema for one year; although she still was losing 1 Gm. of protein in the urine, her protein loss was diminishing. The other girl had received 2 10-day courses of corticotropin, and, although she responded regularly with diuresis and loss of edema, her plasma protein level remained low,
the albumin fraction always particularly so. Althc
she was still losing about 1.5 Gm. of protein in
urine per day she remained edema-free and her bl
protein level improved on continuous treatment
prednisolone in daily doses of 25 mg. combined
tetracycline therapy.

The effect of both corticotropin and predniso
thus has been most gratifying in these patients.
sponse to therapy would appear to depend to
extent on adequate dosage over at least 6 days.
biotic therapy is of great importance in the man
ment of patients with the nephrotic syndrome;
any sign of infection such therapy should be imm
ately initiated and, when treatment with steroic
instituted, it is essential that antibiotic therapy
given at the same time. The importance of full
with no added salt is stressed.

National Policies for the Prevention of Rickets
Lightwood and T. Stapleton. Ann. paediat. 188:27
(May) 1957 (In English) [Basel, Switzerland].

This paper describes experiences in Britain ir
virtual eradication of rickets. The most importa
the changes in the nutrition of children in the U
Kingdom now, compared with 1915, that explain
disappearance of rickets is the improvement in
general standard of nutrition together with a
appreciation by the government and the people o
value of regular administration of vitamin D in
early years of life. The second major change i
provision of cod liver oil supplements and vita
fortified dried milks by the maternity and child
fare clinics. Thirdly, vitamin tablets and a sp
allowance of milk are made available to preg
women. One danger has become apparent, na
chronic hypervitaminosis D. In this connection
authors point out that in the preparation of
milks an excess of vitamin D was being adde
some manufacturers in order to ensure that
powder contained not less than its stated conte
vitamin D. This extra vitamin D "coverage" was n
because there is some loss of vitamin D activity
ing storage.

The methods of prophylaxis used in Britain are
directly applicable to other countries; understan
of local conditions is necessary. The general n
tional standard will be influenced by economic co
tions and the receptiveness of the public and
authorities to education about diet. A simple wa
many countries to provide vitamin D would be
exposing the infants to sunshine. Yet in many part
the world where there is adequate sunshine
mothers keep their children in the dark indoors
the first 2 years of life. In these circumstances
mothers must be told that sunshine in suitable amo
is beneficial. The provision of a daily supplement
vitamin D first to the pregnant woman and then to
child is desirable. Here, however, one runs into d
culties of distribution and of ensuring that there i

ular intake. Recently the authors heard of a little l who came into an outpatient clinic wearing a autiful yellow bead necklace made of UNICEF amin A and D capsules. Foods can be fortified, but s must not be overdone. Provision must be made vitamin supplements to children who are entirely east fed. Treatment of rickets with a single massive se is not recommended.

bstructive Emphysema in Infants: 40 Cases. T. Vallor, L. Borbolla and C. Satanowsky. Rev. cubana diat. 29:173-194 (April) 1957 (In Spanish) [Havana].

Obstructive emphysema of the bronchial tree is fre- ent in newborn infants and in infants up to the age 6 months. The symptoms and course of the disease ry with the type and location of emphysema and e occurrence of complications. The disease starts th a respiratory disorder and cough with or without ver. Forty patients were observed in a period of 5 ars in a pediatric clinic of Havana. Most of the pa- nts were newborn infants and infants under the age 3 months. The clinical features of the disease were e sudden appearance of asphyxia in almost all of e cases, associated with dyspnea, cough, and cya- osis ,and diminished movement of the chest. The usal factor was aspiration of food or of amniotic id in 2 cases, allergy in 1, viral infection in 25, and cterial infection in 11. Emphysema was diffuse in cases (bilateral in 16 and unilateral in 6), lobar in , and bullous in 2. Segmental atelectasis occurred in patients, mediastinal emphysema in 3, pneumo- orax in 3, and cardiac insufficiency in 18. The treat- ent consisted of postural drainage, oxygen adminis- ation, nebulization with detergent substances, and ministration of antibiotics and, in cases of cardiac sufficiency, digitalis. Recovery took place within 2 ays in 20 patients and within 5 days in 17. Three wborn infants died, 1 from mediastinal emphysema d 2 from lobar pneumonia. The authors advise early stural drainage to prevent dissemination of obstruc- on into the bronchioles. Postural drainage is obtained placing the patient in the lateral position and rais- g the foot-board of the cradle 15 or 20 degrees with spect to the head board.

xperiences with Therapy for Anemia of Prematurity. Pototschnig and A. Verga. Minerva pediat. 9:242-50 (March 3) 1957 (In Italian) [Turin, Italy].

Anemia is one of the most threatening complications premature infants because of its high incidence and everity and because of its influence on the organic esistance to infectious diseases. Two stages of anemia f prematurity must be distinguished: early and late. he transition from early to late anemia takes place radually and is frequently not perceived. The peak f early anemia occurs between the 7th and 10th week f life. Early anemia is normochromic or slightly hypo- hromic, macrocytic, and associated with reticulocyto- is. Late anemia is evident in the second 6 months of life and culminates at the end of the first year of life. It is characterized by hypochromia and microcytosis combined with anisopoikilocytosis. Early anemia has been more completely studied than the late. Its severity depends on various factors, such as the different degree of organic and functional maturity, the weight of the premature infant at birth, and the influence of aggravating factors, such as infection, dystrophy, or deficiency of vitamins.

Various pharmacological therapies and blood transfusions were employed by the authors in the treatment of premature infants with and without anemia, and the results were compared. Blood transfusion alone prevented the occurrence of early anemia in premature infants. Starting with the 5th month a constant increase of erythrocytes was observed, but the hemoglobin level decreased progressively. Prolonged treatment with iron appeared to prevent late anemia of prematurity. The oral administration of iron simplified the treatment, which can thus be prolonged indefinitely. The best results in treating anemia of prematurity were obtained when both prophylactic therapies were combined.

Reticuloendotheliosis (Non-lipid) in Infants and Children. H. N. Sanford. Illinois M. J. 111:297-302 (June) 1957 [Chicago].

This report is concerned with granulomatous, or nonlipid, reticuloendotheliosis. The pathological process involved is thought to be a disturbance of the intrinsic metabolism involving the cells of the retculoendothelial system. This process differs from the lipid form as seen in Gaucher's disease and Niemann-Pick disease in that there is a tendency for the formation of discrete granulomatous lesions rather than a diffuse infiltration. Lipid accumulations either do not occur or, when they do develop consist of cholesterol and cholesterol esters. Among the 2,859 children under 12 years of age admitted over a 5-year period to Research and Educational Hospitals there were 11 with nonlipid reticuloendotheliosis. In 5 of these children the disease began during the first year of life, and these had the so-called Letterer-Siwe type of disorder. A rash, enlargement of liver and spleen, and generalized lymphadenopathy were present in all of these 5 children. There was also a history of repeated respiratory infections, and the entire course was characterized by repeated infections. Three had roentgenographic evidence of pulmonary infiltrations, and 2 showed rarefied areas in the bones of the skull. All 5 infants had a hypoplastic type of anemia, and the course in all of them was steadily downhill. The average life span was between 5 and 18 months. Only 1 of these 5 children is still surviving.

Five other children, in whom the disorder began at 2 or 3 years of age, had the Hand-Schüller-Christian type of disease (histiocytosis of cholesterol type). While all of these children had some loss of weight, anorexia, and other complaints, none were acutely ill. Only 2 had an initial rash, and in 1 a rash developed later but was never diffuse. Two had hepatic and splenic enlargement, but all had generalized lymphadenopathy. All exhibited roentgenographic lesions of skull or bones. Biopsy showed foam cells filled with cholesterol droplets surrounded by a zone of fibrosis, after the disease had existed for a year. All of these 5 children are living. Only 1 child, an 8-year-old boy, had eosinophilic granuloma, a solitary lesion of the radius. There was no enlargement of liver and spleen or adenopathy. Microscopic examination of material from the granuloma showed granulomatous eosinophils and large mononuclear cells, containing no lipid material. The boy has been well for the past 2 years and has shown no other lesions.

This series of 11 cases indicates that all 3 types of *reticuloendotheliosis* are part of the same disorder. The difference is only in the degree or intensity of the disease, which is linked to the age of the child. Treatment was unsuccessful in the younger age group, although the infants were made more comfortable and their life span was increased by adrenocorticosteroids, corticotropins, antifolic acid compounds, transfusions, and antibiotics. The older age group responded well to the above treatments plus pituitary compounds to control polydypsia and polyuria.

UROLOGY

Influence of Urinary Glucuronide on Solubility of Calcium Phosphate and Stone Formation: Experimental Urolithiasis XII. C. W. Vermeulen, B. Finlayson and W. Chapman. J. Urol. 77:685-696 (May) 1957 [Baltimore].

Neuberg and Grauer, using menthol glucuronide as the test material, reported that the presence of glucuronides increases the solubility of calcium phosphate. Using this finding, Prien and Walker suggested that salicylate administration may be beneficial in patients with urolithiasis since salicylate is excreted in part as conjugated glucuronides. Experiments were done to see if confirmation of this concept could be obtained. In the first experiment, foreign bodies were placed in the bladder's of rats to stimulate stone formation. Feeding of aspirin failed to inhibit stone growth, but it was found that rats do not excrete significant amounts of administered salicylate as conjugated glucuronides. Therefore, isoborneol, a known augmenter of glucuronide excretion, was tried. Again, stone formation was not inhibited. In the second experiment, the original observations of Neuberg and Grauer on the solubilizing effect of menthol glucuronide were extended to include concentrations at more physiological levels. While their original observation with high concentrations could be confirmed, the solubilizing power of this was barely detectable
at glucuronide concentrations comparable to
that could be expected from salicylate administ
In the third experiment, salicylamide was int
tently administered to 2 normal human subjects
urine was studied for calcium phosphate solubil
2 different methods. No difference was found be
the urines obtained during treatment and tho
tained in the *intervals between* treatment.

**Acute Hemorrhagic Cystitis: An Infection Asso
with Pleuropneumonia-like Organisms and Rela
Urethritis and Prostatitis.** R. L. Berg, H. Wein
and L. Dienes. Am. J. Med. 22:848-864 (June
[New York].

Of 88 Navy patients, men with an average
22.3 years, with unexplained genitourinary infe
usually *unresponsive to sulfonamides* and per
57 (65%) had positive cultures from the uri
pleuropneumonia-like organisms (PPLO). Ele
these 57 patients had cystoscopic evidence o
abacterial pyuria, characterized by pyuria, hem
frequency and urgency, fever, suprapubic and p
pain, and severe hemorrhagic inflammation
bladder with membranous sloughs, for which t
acute hemorrhagic cystitis is preferred by t
thors. Of a second group of 9 men with genito
infection and with positive cultures for PPLO,
cystoscopic evidence of acute hemorrhagic
Two of the 15 patients with cystoscopic evid
acute hemorrhagic cystitis had arthritis, 3 ha
junctivitis, and 1 had epididymitis. Occasionall
was hydronephrosis subsequent to the intense
of ureteral orifices, and it was accompanied by
vertebral angle tenderness. A follicular rash
served in 1 patient. The prostate was characteri
enlarged, firm, or nodular and tender in 8 p

It is suggested that PPLO are the infective
of this disorder in view of their presence i
cultures, the absence of other bacterial organ
which the condition could be contributed, and
appearance of PPLO during successful treatme
arsenicals, streptomycin, and the tetracyclines.
control persons, 51 hospitalized Navy patients
senting complaints referable to the genitourina
and 47 men in the process of being separated fr
naval service, 36 had positive cultures for PPL
the urine, an incidence of 36.7%. If only thos
entirely negative genitourinary findings amo
control persons were considered, 17% had
cultures for PPLO from the urine. In additio
probable role in the causation of acute hemo
cystitis, PPLO possibly are responsible for many
of nongonococcic urethritis and prostatitis. It is
that the organisms are transmitted venereally
they are thus present with much greater freque
promiscuous males, and that after an initial inf
they may linger asymptomatically in the uret
prostate.

THERAPEUTICS

icylate Intoxication Treated with Intermittent Posi- Pressure Respiration. S. Freier, B. W. Neal, H. I. Nisbet and others. Brit. M. J. 1:1333-1335 (June 1) 7 [London].

lany cases of salicylate intoxication are the result accidental ingestion of the drug. Heymann states t the danger of intoxication is much greater after rapeutic administration of the drug. Holt has shown t the dosage of salicylate administered does not r a constant relationship to the blood level and t the blood level at which toxic symptoms appear ies greatly. One of the many common and most portant symptoms of salicylism is hyperventilation, ich is due to reflex stimulation of the central re- ratory mechanism via afferent fibers of the vagus ve. Hyperventilation is responsible for the state of alosis which ensues and which is clinically mani- ted as tetany. Due to the fact that electrolytic dis- bances are secondary to hyperpnea, therapy is ected toward reduction of the respiratory exchange d hyperactivity of the respiratory musculature. Ex- rimental studies have indicated the limitations re- rding hyperpnea and the secondary biochemical anges using barbiturates and opiates. Use of these ugs was abandoned when they were found to cause longed coma and death due to sensitization of the imals to these drugs by salicylates. In the case cited, perpnea of salicylate poisoning was successfully ated by neuromuscular block (5 mg. of suxameth- ium at 5-minute intervals for 15 minutes) and nually controlled intermittent positive pressure piration. The response of the patient to carbon xide inhalation precludes its use in treatment of s type disorder. Calcium gluconate administered relieve tetany was ineffectual, as the tetanic condi- n was not related to calcium ion blood levels.

able Tubercle in Closed Lesions. J. V. Hurford and . H. Valentine. Tubercle 38:194-198 (June) 1957 ondon].

Tubercle bacilli present in "closed" necrotic lesions n be grown only with great difficulty. Though visible direct films, the bacilli often appear nonviable. ecimens for study were restricted to those patients ith radiologically "minimal" or very limited disease, ithout cavitation, who had a history of tuberculosis 6 months' duration but must not have had a positive utum on smear or culture during the 6-month period ior to resection. The laboratory procedure was es- ntially that of Holly and co-workers. In this series, patients (80%) had a positive smear in one or more mples, the smear being positive in 64 instances 8%). No correlation was demonstrated as regards ability and the number of visible bacilli and none between the number of visible bacilli and the amount of growth on the culture. A relationship would seem to exist between the size of closed lesions (foci) and the number of tubercle bacilli on culture and/or guinea pig inoculation. The duration of chemotherapy has little or no effect on the number of tubercle bacilli seen on direct examination or the frequency of occurrence of atypical bacilli. Only 2 of all of the positive cultures showed definite drug resistance. The persistance of closed lesions is not usually attributable to their insensitivity to chemotherapeutic agents.

A Clinical Study of Anticoagulants in Acute Myocardial Infarction with Particular Reference to Early Heparin Theory. G. L. Eastman, E. T. Cook, E. T. Shinn and others. Am. J. M. Sc. 233:647-653 (June) 1957 [Philadelphia].

The use of anticoagulant drugs in the management of patients with acute myocardial infarction is still an unsettled question. Three hundred sixty-two patients were admitted to the University Hospital and divided into 3 groups: (1) untreated, (2) treated with Dicumarol, and (3) treated with Dicumarol and heparin. The mortality rate was higher in the untreated cases and least in the group treated with Dicumarol, the differences being relatively insignificant unless the early (24-hour) deaths are counted. There was a lower incidence of thromboembolic phenomena in anticoagulant-treated patients; however, hemorrhagic phenomena were greater here than in untreated patients, especially in the heparin-dicumarol group. Superficial examination of statiscal data suggests that anticoagulants are of value, but consideration of the severity-of-illness factor implies differences in death rates. Early use of heparin seems of little value considering the increase in hemorrhage and lack of significant alterations in either mortality or incidence of thromboembolism.

Application of Homeostatic Principles to the Management of Nephrotic Patients. N. B. Talbot, J. D. Crawford and C. D. Cook. New England J. Med. 256:1080-1084 (June 6) 1957 [Boston].

Observations on nephrotic children indicate that sodium retention and edema are not necessarily the result of an intrinsic loss of renal capacity to excrete sodium salts and water. Metabolic studies concerned with edema in children with the nephrotic syndrome point to a series of reactions and to the primary pathological loss of albumin in the urine. This series of reactions in order of occurrence consists of (1) fibrinoid degeneration of glomerular basement membrane, (2) albuminuria, (3) hypoalbuminemia, (4) hypovolemia, (5) renal sodium conservation, (6) increased body solute stores (e. g., sodium), (7) renal water conservation, and (8) increased extracellular volume (e. g., edema, ascites). A number of factors employed in the management of nephrotic edema are utilized at various points in the progressive reaction scheme to prevent or reduce the edema. Corticosteroid therapy is indicated at the initial fibrinoid degenerative stage, as corticosteroids are singularly effective in reducing albuminuria due to the destruction of the basement membrane. This type of therapy is unique in that corticosteroids alone tend to suppress the degenerative process primarily responsible for the course of the disorder. Albumin infusion and blood transfusions are relatively effective at the hypoalbuminemic and hypovolemic stages respectively. Attempts to induce a sodium diuresis at the renal sodium conservation level by mercurial diuretics and other similar agents is relatively ineffective and possibly causes some renal damage. Restriction of water intake and paracentesis are of little value save for some small relief afforded the patient.

Aplastic Anemia Due to Chloramphenicol. N. O. Madsen. Ugesk. læger 119:489-491 (April 18) 1957 (In Danish) [Copenhagen].

The author has considered chloramphenicol the most effective antibiotic in the treatment of chronic lung infections. Where even large doses of penicillin (500,000 to 1 million units twice daily), possibly combined with streptomycin, were without effect and tetracyclines also were unavailing, chloramphenicol led to prompt fall of temperature and rapid decrease in expectoration. The risk in the treatment has been considered slight, especially in view of the frequently grave character of the basic disease, and not essentially different from that in treatment with other antibiotics. A fatal case of aplastic anemia after repeated long-continued treatment with chloramphenicol occurred in a woman aged 59 with mitral stenosis and chronic bronchitis. The danger of aplastic anemia from chloramphenicol is negligible on careful dosage during an acute infection, but there is increasing risk in massive, prolonged, or repeated treatment.

PATHOLOGY

Persistence of Intra-atrial Septum in the Aged: Physiopathological and Anatomicochemical Studies of Cases. F. Barboni. Sett. med. 44:591-599 (Dec. 15) 1956 [Florence, Italy].

The cases of two women, 72 and 56 years old, who died of congenital heart defects are reported. The patients reached the age of 67 and 56 respective- ly without cardiac complaints. The first patient suffered repeated episodes of heart decompensation with marked dyspnea and cyanosis for 5 years before death. Clinical examination revealed enlarge- ment of the heart and accentuation of the second pulmonary sound. Enlargement of the median arch and of the branches of the pulmonary artery, which appeared pulsating, were observed on roentgenolog- ic examination. Persistence of the fossa ovalis with marked hypertrophy and dilation of the right left cardiac chambers were observed at autopsy. T right auricle contained large thrombi. Fibrous diff gray lesions were seen in the myocardium. At sclerosis was present in the pulmonary circulat especially in the large extraparenchymal branches the pulmonary artery and in the large and med arteries. Large scars, evidence of latent ischemic farcts, were present in the spleen and in the kid The second patient had asthma, dyspnea, and ed in the lower limbs for some years before her de Free effusion in the left pleural cavity and in t abdomen, enlargement of the heart, and an acc tuated second pulmonary sound were noticed on ical examination. Autopsy showed a congenital de of the heart with a persistence of the foramen o due to incomplete development of the septum, hy trophy, and dilation of the heart. Severe diffuse at sclerosis was observed in the vessels of the cardium and several foci of myocardial scl Severe atherosclerosis was present in the pulm circulation.

Incidence of Hepatitis Following Transfusi Whole Blood. R. Katz, H. Ducci, H. Benne J. Rodríguez. Am. J. Clin. Path 27:406-421 (Apr [Baltimore].

An attempt was made to determine the incide of post-transfusion hepatitis in 193 recipients of wh blood transfusions and to correlate the findings in donors at the time of the donation with the incide of post-transfusion hepatitis in the recipients. Of t 193 recipients, 144 were followed up for periods from 5 to 12 months after having received wh blood. The clinical and laboratory features of hep titis were observed in 6 (4.16%) of the 144 patients the 6 patients, 2 men and 4 women, between the a of 19 and 62 years, 3 had received 1 transfusion, 1 received 2 transfusions, and 2 had received 7 tr fusions in the course of operations for repair of dominal wall, removal of pituitary adenoma, drain of pelvic abscess, removal of gastric carcinoma, ruptured ectopic pregnancy. The time interval tween the transfusion (or transfusions) and the servation of jaundice corresponded with the accep incubation period of inoculation hepatitis in 5 pati The short interval of 14 and 8 days, respecti between the first and second transfusion and the o of the first symptoms of jaundice in the 6th pa might have indicated the artificial transmissio natural hepatitis. The incidence of post-transf hepatitis was higher among those who received tiple transfusions (5.6%) than among those wh ceived only 1 transfusion (3.3%).

There was a lack of correlation between the re of liver function tests in the donor and the dev ment of hepatitis in the recipient. The 3 donors w blood induced inoculation hepatitis in the 3 reci who had received 1 transfusion had a normal le bilirubin in the serum and negative results fro flocculation tests at the time of donation. Conversely, hepatitis with jaundice did not occur during the time of observation of any of the recipients of blood from 33 donors who had abnormal levels of serum bilirubin, positive results from flocculation tests, or both. The only effective means of reducing the incidence of post-transfusion hepatitis is to give transfusions of blood only if they are specifically required.

Aneurysm of the Coronary Arteries. A. E. Gilbert, P. A. Snedecor and E. J. Losli. Northwest Med. 56: 699-702 (June) 1957 [Seattle].

One case of coronary artery aneurysm was found in 2,090 consecutive autopsies during a 10-year period. At the present time, 61 cases have been recorded in the literature and are classified as follows: congenital, 18; arteriosclerotic, 14; mycotic-embolic, 13; syphilitic, 7; due to polyarteritis, 2; mycotic, 1; rheumatic, 1; and unclassified, 5. This case represents the 14th of the arteriosclerotic type and the 3rd in which death was due to rupture of an associated arteriosclerotic aneurysm of the abdominal aorta. Destruction and distortion of the elastic lamina of vessel wall by arteriosclerotic plaques is considered one mechanism by which coronary artery aneurysms develop in arteriosclerosis.

An Experimental Study of Fat Embolism. N. A. Halasz and J. P. Marasco. Surgery 41:921-929 (June) 1957 [St. Louis].

Numerous thorough studies have been made of clinical and pathological changes occurring in simulated fat embolism with supposedly bland substances other than fat. This experiment utilized omental and perinephric fat from freshly killed dogs, macerated in a Waring blendor, filtered through multiple layers of gauze, heated and centrifuged, and injected with 5 cc. of isotonic citrate solution through a polythene cannula into the jugular vein. The immediate results obtained upon injection were apnea, bradycardia, cyanosis, systemic hypotension, and pulmonary hypertension. The persistent pulmonary hypertension immediately after injection is attributed to local vasoconstriction and arterial spasm. The animals showed an improvement minutes later, except for those animals who, having received larger doses, regressed, becoming cyanotic, exhibiting tachycardia and ultimately ventricular fibrillation, respiring irregularly, and dying in respiratory arrest. The resulting pulmonary hypertension involves other respiratory and cardiovascular changes previously described and called the Jarisch-Bezold reflex, consisting of systemic hypotension, bradycardia, and apnea. Due to the fact that embolization of the greater circulation occurs terminally in all animals, the question arises whether this is incidental to or the cause of the agonal collapse of circulation. The reestablishment of normal pulmonary circulatory dynamics, followed by passage of fat into the greater circulation, embolization of the brain producing cardiac arrest and death, and the lat appearance of fat in the left side of heart is postulated as a protective function of the lung preventing massive immediate peripheral embolization. The mechanism of death cannot be stated with absolute certainty, although anoxia is a significant factor. In this experiment no attempt was made to overcome respiratory arrest, and this condition always preceded cardiac standstill.

Splenic Forms of Hepatolenticular Degeneration. G. Boudin, B. Pepin and E. Fournier. Presse méd. 65: 952-955 (May 22) 1957 (In French) [Paris].

Disorders of proteins and copper metabolism appear in the first stage of hepatolenticular degeneration. In rare cases of this disease abdominal symptoms predominate. Splenomegaly, hypersplenism, purpura, and hemorrhage may be observed. These features lead in 67% of the cases to a diagnosis of Banti's disease and to splenectomy. The abdominal form of the disease can be so severe that death may occur in the hepatic stage, before any other form manifests itself. In most patients, however, the splenic form changes, at least partially, and the conventional nervous form appears, thus revealing the correct diagnosis. Hepatolenticular degeneration is a hereditary disease. Consequently, before resorting to a splenectomy in a child or a young adult, one should look for a family history of hepatic disease. It is important to search for a Kayser-Fleischer ring by slit-lamp examination, for hypercupremia, and for a hyperaminoacidemia, as all these factors help to establish the diagnosis. Splenectomy is a drastic operation in these frail patients. It does not remove the secondary neurological signs, which lead to death in less than 2 years. Latent hepatic disorders, discovered through biological tests or punch biopsy, are usually too far advanced for operative therapy.

RADIOLOGY

Radiographic Demonstration of Choledochal Cyst by Oral Cholecystography. J. E. Moseley. Radiology 68:849-851 (June) 1957 [Syracuse, N. Y.].

Choledochal cyst or idiopathic dilatation of the common bile duct is a congenital localized dilatation, the etiology of which is obscure. Choledochal cysts have been demonstrated directly by the introduction of contrast substances into the cyst through a needle puncture and indirectly by pressure defects on the duodenum and displacements of the adjacent structures. A review of the literature suggests that these cysts cannot be shown by oral cholecystography. In the 5-year-old girl whose history is presented, both the gallbladder and the cystic dilatation of the c mmon bile duct were demonstrated by oral ch
graphy with iopanoic acid (Telepaque). Th
of choledochal cyst was confirmed on
tion, and a cystoduodenostomy
hor ascribes the demonst

gallbladder in this case to the use of Telepaque and the fact that the patient was examined after her jaundice had cleared. He emphasizes the importance of preoperative diagnosis in reducing mortality from surgery in this condition.

A Survey of Complications of Abdominal Aortography. J. G. McAffe. Radiology 68:825-838 (June) 1957 [Syracuse, N. Y.]

A questionnaire was sent to 450 hospital radiologists and urologists in order to obtain information on the frequency of complications associated with abdominal aortography. Ninety-five of the 301 replies received stated that no abdominal aortograms had been performed. Of the 13,207 abdominal aortograms reported [illegible] the questionnaires, 12,832 were obtained by the lumbar needle technique and only 375 by the guide femoral catheter technique. A total of 37 deaths and 98 serious complications were reported, that is, the complication rate was 1.02% and the mortality rate 0.28%. Renal damage from the contrast medium was the most important complication, usually resulting from excessive injections, direct renal artery injections, or injections in patients with high aortic obstruction. The danger of neurological damage appeared to be increased by the use of spinal or general anesthesia, by excessive injections of the medium, and by the proximity of the needle tip to the major anterior radicular artery, usually at the level of the second lumbar segment. Hemorrhage from the puncture site was one of the less frequent complications. Although many hematomas were reported in the survey, in only 13 instances were these accomplished by shock and therefore considered to be serious complications; 5 of these were fatal. The hematomas were usually retroperitoneal, but sometimes were perirenal, peritoneal, or superficial. Thirteen serious cardiovascular reactions were encountered, with 5 fatalities. Several occurred in elderly, poor-risk patients. Ten gastrointestinal complications of various types were reported, 5 of which were fatal.

Less frequent complications included retroperitoneal sepsis, dissecting aneurysm, respiratory complications, complications at the site of insertion of the catheter, and extension of arterial thrombi. Although complications associated with aortography will probably never be entirely eliminated, the author cites some measures that might reduce their frequency. To guard against direct injection into the renal arteries or other aortic branches, a test film should be made routinely after the injection of only 5 cc. of the medium with the needle in place. The aortic needle should be inserted at a high level, well above the L-2 level. If examination of the kidneys or upper aorta is not required, insertion should be well below the level of the renal arteries. This also enables better visualization of the femoral and other peripheral arteries. Local anesthesia is indicated in most patients to minimize the danger of neurological damage. Abdominal compression or the 2-needle aortogram technique should be avoided. Excessive amounts of contrast medium (over 30 cc.) should not be used, and as few injections should be made as possible, particularly when the kidneys are exposed to the medium. Rapid serial films enable complete renal studies with a single injection. The newer contrast mediums may be safer than either acetrizoate (Urokon) or iodopyracet (Diodrast). In patients with high aortic obstruction, satisfactory studies may be obtained with no more than 12 to 15 cc. of medium, and usually a single injection suffices. Direct puncture of an aortic aneurysm must be guarded against because of the danger of hemorrhage. A 20-minute pyelogram should be obtained routinely to detect retroperitoneal bleeding; hypertensive patients should be closely observed for this complication. The effectiveness of preliminary injections of antihistamines or cortisone in preventing serious systemic reactions to contrast mediums has not yet been established. Severe reactions, however, have responded dramatically to intravenous preparations of cortisone.

Coproliths. R. M. Berg and H. M. Berg. Radiology 68:839-844 (June) 1957 [Syracuse, N. Y.].

The estimated incidence of coproliths ranges from 1 in 2,000 appendectomies to 1 in 10. The radiologist should be "coprolith-conscious." Whereas not a single coprolith was observed by the authors before 1949, they have been seen in 42 patients since. In 35 they were discovered preoperatively and in the others after the operation because the surgeon requested an x-ray study of the removed appendix. The most widely accepted explanation of the mechanism of coprolith development is that of Kelly and Hurdon (1905). It suggests that impairment of the normal peristaltic return of fecal content from the appendix results in inspissation. Subsequent irritation and bacterial activity cause a low-grade inflammation with mucus secretion. The inorganic salts, mainly calcium phosphate, contained in the mucus are precipitated on the surface of the fecal nucleus. Wangensteen and Bowers suggested that the appendix frequently behaves as a closed loop, permitting entry but preventing free extrusion of the fecal stream. They regard the closed loop phenomenon as the initiating factor in appendicitis and inflammation and suppuration as consequences of the obstruction. This explains why a patient may have a coprolith for some time before the development of acute appendicitis.

Reviewing observations on the 35 patients in whom the coprolith was recognized preoperatively, the authors emphasize the somewhat lower ages of their patients compared with those in other reports; all but 5 were less than 30 years of age, and 16 were less than 10 years old. The correct diagnosis can frequently be achieved only by x-ray examination of the abdomen. A calcified shadow or shadows in the right lower quadrant should immediately suggest the possibility of a coprolith, although a number of conditions such as bone islands, ureteral and vesical calculi, calcified mesenteric lymph nodes, phleboliths, calcified epiploic appendices, and ovarian and uterine calcifications may simulate coproliths. In the presence of a coprolith in a patient with acute abdominal symptoms, there is at least a 90% chance that the patient has an acute appendicitis and a 48% chance that the appendix is gangrenous or perforated. A survey of the literature reveals that most authors recommend an immediate appendectomy whenever a coprolith is found. The findings in this series are in agreement so far as the younger patients are concerned. Operation would not appear to be necessary in the symptom-free older patients.

Superficial Malignant Lesions of Bladder Treated by Radioactive Colloidal Gold (^{198}AU). P. I. Tuovinen and K. Kettunen. Brit. M. J. 1:1090-1095 (May 11) 1957 [London].

Intracavitary irradiation has a distinct advantage over externally applied roentgen rays in the treatment of multiple superficial lesions of the bladder. Several techniques have been developed for substances emitting gamma rays, but for very superficial lesions it seemed advisable to use beta radiation. Radioactive colloidal gold (Au^{198}) seemed suitable because of its short half-life (2.7 days), its type of emission, and its colloidal nature. It emits about 95% beta radiation and 5% gamma radiation. This preliminary report is based on experience with Au^{198} in the treatment of superficial lesions of the bladder. The patients treated included some with papillary cancers and some with recurring extensive papillomas without histological evidence of cancer.

The histories of 3 patients are described. Fluid intake was restricted on the day prior to treatment and forbidden on the day of treatment. When the activity in milicuries per milliliter had been determined, the desired dose in millicuries was drawn into the lead-shielded syringe and introduced into the bladder through an ordinary bladder catheter. Injection was readily accomplished after removal of urine by catheter. Sterile isotonic sodium chloride solution was used for rinses. The radiation dose in most cases ranged between 4,000 and 5,000 r, estimated at the mucosal surface. The doses were given as single exposures for 4 to 6 hours. The treatment had no harmful side-effects locally or on the general condition of the patient. Three selected cases suitable for Au^{198} therapy are briefly reported. The authors had the impression that this is an excellent type of irradiation for really superficial malignant lesions.

ANESTHESIA

Elective Cardiac Arrest During Cardiotomy: Summary of 37 Cases. D. E. Hale, P. P. Moraca and C. E. Wasmuth. Anesthesiology 18:378-388 (May-June) 1957 [Philadelphia].

Elective cardiac arrest with potassium citrate was used during open-heart operations in 37 patients. The duration of the arrest varied from 7 to 40 minutes, with an average of 17 minutes. After the patient's blood had been heparinized and his circulation had been assumed by the heart-lung machine, a clamp was placed on the root of the aorta. Immediately proximal to that clamp, a solution of potassium citrate in heparinized blood was injected into the lumen of the aorta just above the orifices of the coronary arteries. The amount of potassium citrate injected to produce temporary standstill of the heart was about 1 cc. per kilogram of body weight. Light anesthesia with thiopental sodium given rectally to children and intravenously to adults allowed rapid recovery, lessened the danger of nausea and emesis, and permitted a better evaluation of the general condition of the patient. For premedication meperidine hydrochloride and pentobarbital sodium were used. In the first 10 patients, the blood flow from the heart-lung machine was 35 cc. per kilogram per minute. Later, flows up to 70 cc. in children and 40 to 50 cc. per kilogram per minute in adults were used. Physiological changes that occurred during the procedure included a drop in body temperature, a rise in the serum hemoglobin level, a fall in the blood platelet count, and the appearance of acidosis. Metabolic acidosis was controlled to some extent by the respiratory alkalosis which accompanied the use of hyperventilation.

Of the 37 patients operated on, 18 had interventricular defects, 9 had tetralogy of Fallot, 3 had transposition of great vessels, and the remaining 7 patients had interauricular septal defects, pulmonary stenosis, and aortic stenosis. Thirteen of the 37 patients died. There were 4 nonpreventable surgical deaths. Three patients died of pulmonary complications. Six patients were considered to be surgical failures in that the defect was not adequately corrected. The postoperative period seemed to be more critical than the period of operation, and careful observation and supervision were required. Respiratory exchange, body temperature, and blood pressure must be kept within normal limits.

PUBLIC HEALTH

Clinical and Epidemiologic Research on Adenovirus (APC) in Italy. F. Curcio, G. Rolli, P. Filippi and D. Balducci. Sc. med. ital. 5:433-445 (Jan.-March) 1957 (In English) [Rome].

Twelve strains of adenovirus (APC) were isolated from the tonsils and the adenoids of 50 children. One specimen belonged to type 1, 6 to type 2, and 5 to type 5. Eleven specimens were collected on the day of operation and 1 15 to 20 days after operation. Neutralizing antibodies at a titer greater than 1:28 were found in all specimens. Negative results were obtained in isolation trials from 19 specimens of secretions from patients with respiratory syndromes.

Complement-fixation tests were carried out at the virology center in Rome during the last 6 months on 520 serums taken from patients in hospital wards of the city and from patients at an Air Force base where during the month of March some cases of pharyngoconjunctival fever were observed. Twelve positive and 4 probable specimens with adenovirus infections were observed. A marked increase of antibodies was found in the 12 patients with positive specimens. A titer 1:32 was observed in the 4 patients with probable specimens. Four patients came from the same area in the city of Rome. One patient had an exudative pericarditis and 2 a mediastinal pleurisy in addition to the lesion in the respiratory tract. It was not possible to discover whether these additional complications had been caused by the virus.

Simultaneous Mantoux and Vollmer Patch Tests in 5 School Children. V. C. Waegele, W. J. Rothrock R. *Van Scoyoc. Dis. Chest 31:634-642* (June) 1957 icago].

A comparative study of the results of the intracutaneous tuberculin (Mantoux) test with 0.1 cc. of a solution containing 0.00025 mg. of purified protein derivative, or 12.5 tuberculin units, and of the patch (Vollmer) test, the strength of which is equivalent to 2.5 tuberculin units, was carried out in 2 junior high schools in which the students were between the ages of 11 and 14 years. It was felt that the patch test might have advantages in the ease of administration and in acceptability to the students and their parents. The study was made to determine whether the patch test could be substituted for the intracutaneous test. The 2 tests were given simultaneously and the patch test had the disadvantage that in about 10% of the tests the patch became detached before the proper time interval had lapsed.

Of 855 students so tested, 83 reacted to both tests, 113 reacted to the intracutaneous test but not to the patch test, and 3 reacted to the patch test but not to the intracutaneous test. In general it was noted that in patients whose intracutaneous reaction was markedly positive the reaction to the patch test was also usually positive, but in those whose intracutaneous reaction was less marked, the patch test did not cause a reaction. When the result of the patch test was positive, the intracutaneous test almost certainly confirmed tuberculin sensitivity. One hundred thirteen persons had positive reactions of minimal readings (1 + or 2 +) to the intracutaneous test, and this group of persons holds special significance. If the persons in this group had been given only the patch test, 94 would have gone unrecognized as being sensitive. In a clinical situation dealing with individual contact patients in whom higher tuberculin doses could be used in repeat testing to rule out false-negative results, the patch test is satisfactory. There is not, however, convincing proof that a high proportion of clinicians routinely give persons with a negative reaction to the patch test an intradermal test of higher tuberculin strength to exclude the possibility of a false-negative reaction. The group of persons with a positive reaction to the intracutaneous test with minimal readings, moreover, is apt to be productive of active cases. The testing situation described in this paper is comparable with the previous screening in Los Angeles schools in which 20 active cases with previous intracutaneous minimal readings (1 + and 2 +) were determined out of 45 active cases with previous readings of all degrees.

Any failure to detect active cases far less pronounced than is indicated above would invalidate the use of the patch test despite its greater economy as to expense and work load. Intracutaneous tuberculin testing, therefore, should remain the method of choice in Los Angeles City schools. It is acknowledged that in other testing situations the patch test may be a useful procedure.

The Field Hamster (Cricetus cricetus) as Source of Infection with Swamp or Field Fever. H. Mochmann. Ztschr. Hyg. 143:327-333 (No. 4) 1957 (In German) [Berlin].

It was demonstrated in 1942 that the field mouse (Microtus arvalis) may harbor Leptospira grippotyphosa, the cause of swamp fever or field fever, and the author observed in the fall of 1955 field fever in one of a group of boys who during play had thrown field mice at one another; in so doing the boy in whom the fever developed had become contaminated with mouse urine. Serologic tests on this boy demonstrated that he had L. grippotyphosa infection. Studies during an epidemic fever among agricultural workers in pea fields in 1949 revealed another animal host of this organism, namely, the field hamster (Cricetus cricetus). When in 1955 the author observed an extensive epidemic of swamp fever in a region in which field hamsters are prevalent, studies were made to ascertain whether the hamsters harbored leptospirae. The kidneys of 2 hamsters yielded leptospirae. Five other hamsters, which had been trapped in the epidemic region and after that had been kept in the laboratory for several months, gave negative serologic tests. No leptospirae were found in the renal pulp of one hamster infected with a L. grippotyphosa strain from a mouse that had likewise been trapped in the epidemic region, but the serum of this hamster had a positive titer for L. grippotyphosa of 1:1,600.

While the field hamster subsists largely on vegetarian foods, he is known to prey on smaller animals, especially field mice and their young, and it is possible that in this way the animal became infected with L. grippotyphosa. That this organism is transmitted to man by hamsters is explained by the fact that these animals are hunted and killed by the thousands; in one region 13,970 had been killed in 1939, and a report of 1888 mentions the trapping of 97,519. Professional hamster trappers sell the pelts; furthermore, the animals are eaten, their kidneys being regarded as a delicacy. This may be another source of infection with field fever. The author also mentions that the golden hamster (Cricetus auratus) is susceptible to leptospiral infection: This animal has been used for experimental studies on L. canicola.

BOOK REVIEWS

Practical Otolaryngology. By Gervais Ward McAuliffe, .D., F.A.C.S., F.I.C.S., Associate Clinical Professor of tolaryngology, Cornell University Medical College, New ork. Cloth. $7. Pp. 320, with 13 illustrations. Landsberger edical Books, Inc., distributed by Blakiston Division, Mc-raw-Hill Book Company, Inc., 330 W. 42nd St., New York 6, 1957.

The intent of this book is to serve as a source of eference for the general practitioner for common ar, nose, and throat conditions. It is difficult for ny author to decide what to include and what to xclude in this type of work and for this type of udience. Unfortunately, there is an uninhibited endency among many specialists addressing themelves to nonspecialists to "write down" to this group, somehow assuming that oversimplification s a desirable diet. Actually, it is much more diffiult to write for nonspecialists than for one's specialistic peers. Viewed from this vantage, the book s unevenly organized and disappointing, especially since the author is known for his distinguished experimental studies on pain and headache in association with the nasal and paranasal structures. Oddly enough, he deals most inadequately with so common a subject as headaches and devotes only two terse paragraphs to external otitis, a disease that can hardly be classified as uncommon. "Bibliographies are carefully avoided" declares the author in the preface, yet a number of bibliographies appear at the end of several chapters. Despite some obvious shortcomings, the book illustrates personal experiences in otolaryngology that command attention. It is hoped that the next edition will approach the problems of the general practitioner on a higher intellectual level and will include more detail.

Hospital Treatment of Alcoholism: A Comparative, Experimental Study. By Robert S. Wallerstein, M.D., in collaboration with John W. Chotlos, Ph.D., and others. With introduction by Karl A. Menninger, M.D., Chief of Staff, Menninger Foundation, Topeka, Kan. Menninger Clinic monograph series no. 11. Cloth. $5. Pp. 212. Basic Books, Inc., 59 Fourth Ave., New York 3, 1957.

This book represents the findings of a two and a half year research project at the Veteran's Administration Hospital at Topeka, Kan. The purpose of the study was to compare different methods of prolonged treatment of alcoholic patients in a hospital setting. Four methods, disulfiram therapy, conditioned reflex therapy, group hypnotherapy, and closed ward therapy are described. The last group served as a control and differed from the others in that no special drug or technique was employed. The usual psychotherapy was used in this group. Hospitalization of each patient ranged from 60 to 90 days. One hundred seventy-eight hospitalized alcoholic male patients were studied with a follow-up period of two years. Patients were assigned to the various modalities on a random basis in the order of their admission. Exceptions were made when the physical condition of the patient would not warrant possible strain from disulfiram or conditioned reflex drugs. The data sought were those relating to alterations in the level of function. Measures of change were judged by degree of abstinence, social adjustments, subjective feelings of difference, and structural changes and personality configuration.

This study is a review of an exceptionally detailed research program. It covers the four modalities of therapy mentioned and gives details of the results accomplished. The types of patient in each group are described and categorized, and the effects of each of the modalities on the various classifications are tabulated. There are excellent tables, charts, reference lists, and indexes. Since the authors start with the premise that there there is no primary alcoholism but that alcoholism is symptomatic of some underlying psychiatric condition, it is understandable that the criteria of improvement may be at odds with opinions of others in the field. Whereas total abstinence is mandated by many as being the criterion of improvement, these authors consider moderation in drinking a definite sign of improvement in the patient's condition. The title of the book may prove to be somewhat misleading to the average physician, since it is only in rare instances that a patient is hospitalized 60 to 90 days for the treatment of alcoholism. For research purposes, a lengthy stay is advantageous, but many believe that hospitalization beyond the attainment of sobriety, or perhaps a few days longer, is of little value in helping the patient to a social adjustment.

This book should be of special value to physicians who are interested in research and comparative values of therapy. It could hardly be considered of practical value to the average doctor whose alcoholic patients can afford but a few days of hospitalization and whose therapy must be carried on in the atmosphere of the physician's office. For the physician especially interested in alcoholism, however, it presents an extremely valuable discussion of the four modalities used. The references are especially good and unusually complete. The introduction to the book, although not optimistic, is realistic in its approach and sets the stage for an objective and valuable study.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Clinical Proctology. By J. Peerman Nesselrod, B.S., M.S., M.Sc., Assistant Professor of Surgery, Northwestern University Medical School, Chicago. Second edition. Cloth. $7. Pp. 296, with 72 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1957.

In this new edition of an eminently useful and widely read book, originally entitled "Proctology in General Practice" and first published in 1950, fortunately, there has been little alteration of the text. The book was written especially for the general practitioner and leaves little to be desired. In this edition some new illustrations have been added; several which appeared in the first edition have been replaced, some in color. The short chapter on anal contracture is new and is of distinct value. The author is uncommonly apt at expressing himself concisely, yet adequately, and he thereby provides in this book a source of ready reference for the busy practitioner. When confusion exists as to terminology or classification, the author provides interpretations and arrangements that clarify his discussions. Surgical techniques are presented clearly and in detail. Well-chosen illustrations enhance the value of these descriptions. The chapter on anal infection deserves special attention, and the diagram of anal infection on page 70, a contribution which is original with the author, provides in a few words what is unquestionably the most lucid and accurate description, thus far, of the causes, sources, and mechanics of inflammatory disorders of the rectal outlet. Probably the most important phase of proctology is diagnosis. Thus, it is to the author's credit that he has prepared his chapter on diagnostic procedures in great detail. By so doing, he has provided valuable information that can be used not only by the general practitioner but by medical students, internists, and surgeons. In addition, the surgeon will find valuable information in the author's discussion of the surgical management of common anorectal inflammatory diseases. This is a thoroughly good book, and it can be recommended without qualification.

Therapeutic Exercise for Body Alignment and Function. By Marian Williams, Ph.D., Assistant Professor of Physical Therapy, Department of Allied Medical Sciences, School of Medicine, Stanford University, San Francisco, and Catherine Worthingham, Ph.D., Director of Professional Education, National Foundation for Infantile Paralysis, Inc. Paper. $3.50. Pp. 127, with exercise illustrations by Harold Black. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1957.

The authors of this book are physical therapists. The book is designed primarily as a working guide for therapists who desire to provide exercises for patients having various malalignments of the musculoskeletal system. It is profusely illustrated with line drawings, depicting various exercises. The book is divided into five chapters dealing with standing posture; analysis of body alignment, the therape exercise program, principles of treatment and ercises for the various areas, and positions of body in activity and rest. There is also an exten appendix containing illustrations demonstrating muscles of primary concern in alignment of the b and a discussion of the origin, insertion, and fu tion of these muscles. The manual is designed the use of all persons dealing with problems of b alignment and function. An effort has been mad select those corrective procedures that are best su ed for clinical application and to discuss them i terms of basic functional anatomy. The book, therefore, is concerned with selection and analysis o material rather than with the introduction of ne techniques. This manual is well organized wi clear type and good illustrations. Suitable bibliographies are appended to each chapter. The chapte on positions of the body gives many excellent illu trations of proper and improper ways of performin various activities. Although this book contains nothing new, it can be recommended as a well-orga ized teaching manual for student therapists and a a workbook for persons who are instructing patien in therapeutic exercises.

Atlas of Clinical Endocrinology Including Text of Diagnosis and Treatment. By H. Lisser, A.B., M.D., and Robert F. Escamilla, A.B., M.D., Clinical Professor of Medicin University of California School of Medicine, San Francisc Cloth. $18.75. Pp. 476, with 148 illustrations. C. V. Mosb Company, 3207 Washington Blvd., St. Louis 3, 1957.

This volume brings together, pictorially an graphically, the wide experiences of one of th world's pioneer endocrinologists and his associat It covers the clinical disorders of the pituitary thyroid, parathyroids, adrenals, gonads, and pancreatic islets. Most of the endocrinopathies presen certain physical characteristics that are in themselves diagnostic. This is evidenced in this atlas b 800 illustrations of various types of endocrine disorders. These illustrations are documented photographs of the authors' patients, many showing th patient before the onset of the disease, during subsequent stages of development, and after the result of successful therapy. Although the emphasis is o the illustrative material, the textbook, which i brief and concise though fully adequate, covers th symptoms, physical signs, essential laboratory procedures, differential diagnosis, and therapeutic schedules of each entity. It also provides valuabl reference material. An important feature of this book, one which has been neglected in most such books, is the section on nonendocrine disorders simulating or confused with those of endocrine origin—the so-called pseudoendocrinopathies. This book aims to provide the simplest and most direct avenue for learning and understanding clinical endocrinology for the medical student, general practitioner, and the specialist.

QUERIES AND MINOR NOTES

IDS AND ALLERGY

: Editor:—*For the past few months some 15 ren, their ages ranging from 18 months to 13 , have been treated for severe asthma and rhi- The older ones were malnourished, gaining only .2 lb. a year. They had no desire to play; their l grades were only fair. Physical examinations ed muscles to be soft and flabby, mucous mem- s of the mouth, nose, and throat were pale, and natic rales were always present. For the older ren 2.5 mg. of Meticorten was prescribed every ing and evening for a period of 10 days to two s; then, the rest of the month was skipped, after h the course was repeated. After this pro- re the dosage was changed to 2.5 mg. on the ing and evening of every third day. The re- se was excellent. These patients gained from 5 lb. a month; their activity increased, and they ed as normal children with no apparent fatigue; became jovial, whereas before they had been ned to be irritable, and their schoolwork showed arked improvement. The 18-month-old patient a severe allergic rhinitis, for which 1.25 mg. of icorten was given in the afternoon for two s; she received immediate relief. What effect do l doses of Meticorten produce on the adrenal d, and for what period of time could this dosage ontinued without any ill-effects on the patient? e much progress was noted from the small doses, here any relationship between allergy, the ad- l gland, and some type of cortisone used in ll doses?*

Arnold M. Smythe, M.D., Des Moines, Iowa.

WER—Side-effects have been observed after ged administration of Meticorten to allergic in- ials, these, however, have been less marked than cortisone is used. Ordinarily side-effects do not before approximately two weeks of continuous y. The usually accepted maintenance adult dose to 20 mg taken daily for weeks or months may, ition to the usual side-effects of prolonged steroid istration, result in "stress reactions" on with- al Shock or evidence of acute adrenal insuffi- y may develop when the patient experiences a condition, such as a severe infection, injury, surgical procedure, and administration of anes- c For this reason a Thorn test might be wise on mplation of Meticorten withdrawal after prolonged administration. This will indicate the state of adrenal cortical responsiveness. If the test is not practical, repository corticotropin (ACTH) may be administered for its adrenal cortical stimulating effect at the time Meticorten is withdrawn.

In the relatively small doses administered to the patients mentioned, there would be little likelihood of either the usual side-effects or the significant adrenal suppression, and, under proper medical supervision, the drug might be administered in the prescribed dosage for several weeks or months in interrupted courses if it were deemed necessary. It is extremely important, however, that concurrent or intercurrent bacterial infections be adequately treated with a suitable antibiotic, and, in the presence of a specific virus disease, the steroid should be used with extreme caution. After exposure to or in the presence of chickenpox, the drug should be discontinued and gamma globulin administered in adequate doses.

Cortisone, hydrocortisone, Meticorten, and similar steroids have no specific relationship to the allergic state. Apparently they act as a buffer to the disease toxin or irritant, decrease inflammatory exudation in some instances, but do not affect the antigen-antibody reaction or the formation of histamine.

REPEATED CONGENITAL MALFORMATIONS

To the Editor:—*An anencephalic monster was recently delivered of a woman whose first baby, born in September, 1953, was also an anencephalic. She had a normal child in April, 1954, and another normal child in February, 1955. How often have two such abnormalities been present in any one family? What are the statistics on the likelihood of abnormality again appearing if sterilization is not done?*

R. C. Rowan, M.D., Albion, Mich.

Answer.—The occurrence of repeat monstrosities in the same family is not unusual. According to Murphy (Congenital Malformations: Study of Parental Characteristics with Special Reference to the Reproductive Process, ed. 2, Philadelphia, J. B. Lippincott Company, 1947), gross congenital malformations, as recorded upon death certificates, afflict approximately 1 in every 213 individuals who are born alive. About 25% of congenitally malformed persons are stillborn. In families already possessing a malformed child, the birth of a subsequent malformed offspring takes place with a frequency which is in the neighborhood of 25 times greater than that of the general population. In families containing two malformed siblings, the subsequent defective child is more likely to be born later in the family than it is to be the next child in order

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answers here published have been prepared by competent authori- hey do not, however, represent the opinions of any medical or other zation unless specifically so stated in the reply. Anonymous communi- , and queries on postal cards cannot be answered Every letter must n the writer's name and address, but these will be omitted on request.

of birth to the first defective sibling. In families possessing two or more malformed siblings, the defect in the subsequent offspring has been identical with that in the previous defective sibling in approximately 50% of instances.

ALCOHOLISM

To the Editor:—*What is a definition and what are the symptoms and signs of alcoholism?*

Francis E. McGrath, M.D., Brooklyn, N. Y.

Answer.—Alcoholism is a disease which is characterized by a compulsive drinking of alcohol in some form. It is an addiction to alcohol. The drinking of alcohol produces continuing or repeated problems in the patient's life. The World Health Organization's definition of alcoholism is as follows:

> Alcoholism is any form of drinking which in its extent goes beyond the traditional and customary "dietary" use or the ordinary compliance with the social drinking customs of the whole community concerned irrespective of the etiological factors leading to such behavior and irrespective also of the extent to which etiological factors are dependent upon heredity, constitution, or acquired physiopathological or metabolic influences.

Symptoms of alcoholism are varied and many. The outstanding symptom is the inability of the patient to stop drinking once he has started. Other symptoms are excessive drinking of alcohol on any occasion when the patient drinks, excuses for drinking, drinking on the least provocation, and using alcohol as a sedative or soporific. There are so many varied symptoms that it is difficult to enumerate them all. Signs of alcoholism are usually the signs of excessive drinking and may be manifested by the signs of the acute phase—incoherence, boisterousness, amnesia, loss of appetite, polyneuritis, liver disease, and the end-points such as the chronic brain syndrome associated with alcohol intoxication (Korsakoff's psychosis).

PERIORBITAL SKIN LESION

To the Editor:—*A patient has a small, oval-shaped, macular, yellowish lesion just under the lower eyelid, approximately 10 by 4 mm. in size. There is no other clinical evidence of any disease. What diagnosis and treatment are suggested?* *M.D., Illinois.*

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—In a young person, some xanthomatous process would be suspected. In an older person, xanthoma, sebaceous pseudocyst or cyst, and morphea-like basal-cell carcinoma must be considered. Biopsy should be valuable for diagnosis, after which treatment can be more accurately carried out.

Answer.—The lesion described is probably molluscum contagiosum, a mildly contagious, umbilicated tumor of the skin occasionally found on the eyelids.
When the lesions appear near the lid margin,
conjunctivitis may be present. Lesions are rep
have been found on the conjunctiva and the
This type of lesion is about 2 to 5 mm. in dia
is elevated above the surface, and in the cen
is a small depression or dell which is characteri
tumor contains a sebum-like substance which
expressed from the growth, after which the
should be touched with a stick of silver nitrate
scopic examination of the contents expressed
a small incision shows proliferation of cells a
duct of one of the sebaceous glands. The cent
show a peculiar keratinization. This is a viral

TUBERCULOUS CLERK EMPLOYED IN A SCHOOL

To the Editor:—*A clerk, who has been with*
high school for some 14 or 15 years, has
ambulatory case of open tuberculosis since
first taken onto the staff. He has no relati
the boys themselves, although he does use
toilet that they use and in going to and
office at times passes through the corridor
school. He eats with the teachers (not
boys), and he has his own dishes which are
separately from those of the rest of the st
man has always been meticulously careful
matter of coughing in public and the car
person. In fact, until quite recently he has
very little during the day. He shares the
the director of the school, and in the after
frequently sits in the staff parlor. Under the
circumstances and owing to the care he
takes, it has never been thought that his
was a menace to the health of his associates
tunately, though, this year two cases of tub
have developed in the school. One case is
new boy who had had no connection with
in question; the other is that of a teacher
sat at the dining table with him. The ques
been raised as to whether it is safe to keep
in the employ of the school and, if so, what
precautions should be taken. *M.D., Ill*

Answer.—It is surprising that a man wit
tuberculosis should be permitted on a school
the first place; the fact that he remains an op
after 15 years have gone by is also surprising
ever has the responsibility of continuing the
his present position must be put on the de
especially now that two cases have developed
institution. He should be aided in finding
ment of such a type that the chance of transmi
disease is reduced. He should not continue
in a school. Incidentally, resectional surgery s
be long overdue in this case. If successful, it
enable the employee to return to the school
endangering the health of others.

DIVERTICULUM OF THE URETHRA

To the Editor:—*Several women patients have a severe pussy discharge from the urethra with concurrent enlargement in the region of the urethra itself. Massage evacuates this sacculation. Please indicate the cause and the treatment of this condition.*

Lester Harbin, M.D., Rome, Ga.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—This is an accurate description of a diverticulum of the female urethra. This condition is not uncommon and is very frequently overlooked. These patients will complain of infection and occasionally of stone formation in the diverticulum. The symptoms are usually those of dribbling at the end of urination, local discomfort, and frequency of urination. The treatment is surgical excision of the diverticulum.

Answer.—The most likely condition is a diverticulum of the urethra, and the diagnosis can be made by endoscopic examination, with the extent outlined by a urethrogram. The treatment is a diverticulectomy with plastic repair of the urethrovaginal septum. It would be unusual to have several women patients with diverticulum of the urethra except in a large urologic practice. Therefore, differential diagnosis would seem indicated. An infected urethrocele should be considered, and this is usually associated with a cystocele. Also, it might be a residual infection of a previous abscess of Skene's glands, but the openings of Skene's ducts are on either side of the median line. The above pathological conditions are associated not only with nonspecific infection but frequently with a Trichomonas infestation secondary to this condition in the vagina.

PAIN FOLLOWING HERPES ZOSTER

To the Editor:—*A 66-year-old man had herpes zoster involving the first branch of the left trigeminal nerve in 1952, with residual scarring of the forehead and a fixed dilated pupil on that side. Vision in the left eye is 20/70 corrected to 20/50. Constant burning has been present in the involved area, but most distressing have been 45-minute episodes of severe pain along the same course after eating or chewing. A course of protamine has afforded no relief. Is stimulation of the third portion of the fifth cranial nerve an acceptable explanation of the pain along the first portion of the fifth cranial nerve? Is any further treatment indicated?* *M.D., Ohio.*

Answer.—The exact cause of the pain following herpes zoster, particularly in the trigeminal nerve, is unknown. One theory is that there is infection of the posterior root ganglion with secondary changes, although others believe that there may be some alteration in the physiology along the principal thalamic tracts on the way of this nerve centralward. The pain is notoriously difficult to stop. Some patients have had some relief by the injection of Pituitrin, although this consultant has never seen any good results with long courses of Pituitrin. There has been some alleviation of the pain by the use of chlorpromazine. In the past, there has been some relief of the pain in some patients by surgery, although there is no assuredness that this will be permanent. It is essential, if the pain is confined to the ophthalmic division, to cut not only the supra-orbital nerves but also the blood vessels, since it is important to interrupt the autonomic nerve supply as well as the somatic. The cause for the fixed dilated pupil is hard to explain if this was an ordinary herpes zoster. Was there actual involvement of the eye proper with scarring, or was this a neural type of pupillary change which would suggest a lesion, most likely in the mesencephalon? It is not usual for herpes zoster to have an accompanying meningitis and encephalitis. This is why it is so difficult to stop the pain at some simply reached point, such as the supra-orbital region of the forehead, because much of the pathology is central. There is always grave danger in these cases of addiction, and other methods of therapy so as to avoid such an outcome might be used. There have been some reports of breaking the pain pattern by means of electroshock, and in most extreme cases even lobotomy has been suggested to relieve the sting of this intractable pain. What this physician describes is one of the most difficult of all pain patterns known to medicine to eradicate.

ERYTHEMATOUS REACTION TO APPETITE STIMULATION

To the Editor:—*A 2-year-old girl has a peculiar reaction persistently associated with eating or with visual stimuli, which results in salivation. She develops an area of erythema, about 3 to 4 cm. wide and extending from the upper anterior border of the left pinna down across the parotid area and following the course of Stensen's duct to the level of its termination. This erythema is unilateral, on the left side and on the outer skin. Examination of the buccal mucosa at this level shows no erythema, only a questionable edema, and there is no obvious change in the opening of the duct into the mouth. There is no obstruction to salivary flow. This phenomenon is repeatable at will, the color fading rapidly after cessation of the stimulus, only to return immediately a stimulus is again present. Mere observation of a piece of candy, for instance, causes its appearance, a good index for study of the effect of visual and olfactory stimuli on salivation. This has been present since birth, the mother having noticed it while the child was nursing. What is this condition, and can anything be done for it?*

Kenneth D. Rose, M.D., Lincoln, Neb.

Answer.—This is a most unusual manifestation of ptyalism and erythematous reaction around the parotid area and is obviously an excessive vascular reaction in the nature of an exaggerated conditioned reflex, such as is described by Pavlov in his early experimental studies on animals. Both the sympathetic and, particularly, the parasympathetic nerves innervate the parotid and the fifth, the seventh, and the ninth cranial nerves supplying fibers from the tympanic and otic plexuses. What should be a *normal reaction* to the anticipation of food becomes overexaggerated, owing to some strange factor which one finds it difficult to explain. This is not an allergy, because it is nonspecific to any particular food; again, it is purely localized to one side of the face; nor is it a type of reaction which occurs with a stone in the parotid duct.

Belladonna and the atropine preparations should help to diminish salivation; if with the growth of the child this strange phenomenon continues, one can visualize possible operation with the transection of the complex nerve supply to the parotid gland, particularly the auriculotemporal nerve which carries both parasympathetic and sympathetic fibers from the otic and tympanic ganglions.

LIGHTNING PAINS DUE TO TABES DORSALIS

To THE EDITOR:—*A 53-year-old woman was given a diagnosis of tabes dorsalis in 1938, at which time Mapharsen and Tryparsamide were prescribed. She never has been entirely free of nighttime pain, and in the past six months lightning pains have been steadily getting worse. The pain can be controlled by the administration of 15 mg. of prednisone daily, but it is felt that the continuation of this therapy is inadvisable. Results of the spinal fluid serology, spinal fluid protein, blood Kolmer, and blood Venereal Disease Research Laboratory tests are all negative, and the result of the blood Kline test is weakly positive. Would a course of penicillin be advisable in controlling the intense pain of this patient?*

M.D., Kansas.

ANSWER.—Lightning pains due to tabes dorsalis often represent a residual which persists after adequate antisyphilitic treatment. This seems to be the case in the patient in question. Nothing is to be gained by giving the patient any more penicillin or any other form of treatment for syphilis. The proper procedure at the moment is to search the patient for foci of infection and to remove any of these which can be found, e. g., an abscessed tooth and infected tonsils, and there should be adequate treatment of a urinary infection. The mechanisms which trigger lightning pains and the effect of steroid hormones on these are discussed by Moore (*Am. J. Syph.* 37:226, 1953).

All other things being equal, there is probably no reason why this patient should not continue on a small maintenance dose of an appropriate steroid hormone, although 15 mg. of prednisone on a long-term basis represents a potentially dangerous dose; an effort should be made to reduce this to 5 to 7.5 mg. daily. An occasional patient who suffers severely from lightning pains in the temperate zone may find relief in winter by removal to Florida or southern California. As a last resort, the patient might be referred to a neurosurgeon for discussion of the possibility of relief by means of anterolateral chordotomy.

ULCER TREATMENT AFTER SURGERY

To THE EDITOR:—*A 23-year-old man was admitted through the emergency room with a three-or-four-hour history of severe abdominal pain. On physical examination his abdomen was found to be boardlike, and an upright film of the abdomen showed free air under the leaf of the diaphragm on the right side. The patient was taken to the operating room immediately, and under general anesthesia a laparotomy was undertaken. A 3-mm. perforation was present in the anterior surface of the duodenum just distal to the pylorus. This was inverted and closed with three Lembert sutures of silk. The patient made an essentially unremarkable recovery after several days of mild ileus and treatment with appropriate electrolyte solutions administered intravenously. He was discharged 12 days later. Careful questioning failed to reveal the typical history one usually finds in a peptic ulcer patient. He had a little mild indigestion "when he traveled" but denied smoking and drinking. He seemed to be a quiet, temperate individual without any outward signs of anxiety such as one frequently sees in ulcer patients In some clinics the phenomenon of perforation of a duodenal ulcer in a patient without previous symptoms suggestive of duodenal ulcer is regarded as an indication for either immediate or subsequent subtotal gastrectomy. One argument advanced for this treatment is that, if a patient manifests perforation as his first "symptom" of duodenal ulcer, a severe ulcer diathesis exists and, if not operated on, he will certainly go on to one of the complications of peptic ulcer disease. (The occurrence of perforation without previous symptoms of ulcer disease is a well-known phenomenon.) Other schools, along more conservative lines, feel that a trial at medical therapy is justified even though perforation, a classic indication for surgery, has occurred; that is, definitive surgery, such as a subtotal gastrectomy, is deferred temporarily or indefinitely. What is the majority opinion today as to the further treatment of a patient such as has been described?*

Robert G. Small, M.D., Stamford, Conn.

ANSWER.—A patient who has had a ruptured duodenal ulcer without previous ulcer symptoms and who has had a successful repair of the perforation should not have a definitive ulcer operation at a later date without a proper evaluation. The patient's ulcerogenic diathesis should be evaluated by a 12-hour night secretion. The amount of hydrochloric acid secreted should then be calculated in terms of milliequivalents by multiplying the amount of gastric juice secreted in liters by the number of clinical units of hydrochloric acid calculated in the 12-hour secretion. If the 12-hour ight secretion should yield milliequivalents of 35 or ver. that patient should be regarded as having an lcerogenic diathesis. Since this patient had no warnng sign of ulcer pain and therefore would be be diffiult to follow except by numerous repeated x-rays, it vould be best to subject him to proper ulcer operation. The patient should be placed on ulcer management or about six months, and an x-ray of the stomach hould be repeated at intervals of three months. If an ılcer is present on x-ray, this patient should also unlergo an operation. An x-ray may not be diagnostic ecause of the defect existing after the repair of he rupture. Under these circumstances, the decision vould be based entirely upon the calculation of the nilliequivalents of hydrochloric acid secreted during .2-hour continuous secretion. If the patient does not ave an ulcerogenic diathesis and his x-ray follow-up emains normal, then the episode of the rupture should e regarded as an isolated experience, and the patient hould be followed medically for an indefinite period ntil criteria develop that would indicate ulcer surgery.

TEST FOR CHOLINESTERASE ACTIVITY

To the Editor:—*Is there a simple test for determining blood cholinesterase activity in workers exposed to organic phosphate insecticides? Is the test-kit manufactured by the Biological Test Product Corp., Roselle, N. J., satisfactory?*

Hollis T. Rogers, M.D., Winnsboro, La.

Answer.—The test-kit mentioned utilizes the bromthymol color test for determining blood cholinesterase activity. Hydrolysis of a substrate acetylcholine iodide by the enzyme in a drop of finger-tip blood is measured by the change in color of the indicator. The blood is diluted with bromthymol blue in a standard (white blood cell dilution, 1:20) blood-diluting pipet, and the mixture is placed in a small serum bottle. To this is added the substrate, after which the sample is incubated in the axilla of the person being tested (or in 98 F water bath) for 20 minutes. The per cent of normal average human cholinesterase is read directly by comparing the individual point color with a color chart which shows the percentage of activity represented by each color. The manufacturer of this kit acknowledges that the symptoms of cholinesterase inhibition do not appear until the blood cholinesterase level has dropped to 30% of normal or lower. (For further information see Limperos and Ranta: *Science* 117:453, 1953.)

The reliability of the testing method depends upon the capability of the person interpreting the cholinesterase values. It has been found that the "normal" cholinesterase value varies from one person to another. It has been suggested that a series of tests be made on individuals coming into contact with organic phosphate materials so that a normal value for the person may be determined.

TWITCHING OF MUSCLES

To the Editor:—*Is there any drug that can be taken for fibrillary twitching of voluntary muscles present off and on throughout the day and night?*

M.D., Illinois.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—It is difficult to discuss treatment for fibrillary twitchings in the absence of any further clinical information indicating the basic cause of the twitchings. These twitchings can be caused by illnesses as serious as amyotrophic lateral sclerosis, but they also may be benign. occurring in relation to fatigue or just spontaneously. Usually, very little can be done pharmacologically for these twitchings, but it may be worthwhile to administer quinine in a dosage of 0.3 Gm. twice to three times daily after meals. Occasionally this drug relieves cramps and twitchings in striated skeletal muscle.

Answer.—This consultant is not able to recommend any drug that would prevent fibrillary twitching of voluntary muscles. Fibrillary twitchings may represent disease of the anterior horn cells, and, if so, there is no way known to eliminate them. On the other hand, perfectly normal individuals often have occasional twitching of muscles when they are especially tense or fatigued. In this case rest and recreation. rather than drug therapy, would be the appropriate treatment.

SYSTEMIC LUPUS ERYTHEMATOSUS

To the Editor:—*What is the most recent treatment of lupus erythematosus? The diagnosis has been established beyond any doubt, and so far only prednisolone has been of any relief. The patient is a 29-year-old housewife who has been afflicted for about 12 months; the disease is generalized.*

M.D., Illinois.

Answer.—The most recent treatment recommended is the administration of freshly drawn blood to patients with systemic lupus erythematosus. Heparinized compatible blood, 30 cc. freshly drawn, is injected intramuscularly three times weekly for several weeks, after which the dose is diminished. By using the leukocyte fraction alone, smaller doses may be employed. It is thought that the leukocytes contain a large quantity of a substance which is destroyed in systemic lupus erythematosus and which normally inhibits the action of an enzyme that depolymerizes desoxyribonucleic acid. It is difficult, however, to evaluate a new form of therapy for a condition such as systemic lupus erythematosus. The usual treatment consists of a combination of corticosteroids and whatever supportive therapy is indicated, including as much rest as possible.

POLIOMYELITIS IMMUNIZATION DURING PREGNANCY

To the Editor:—*A patient developed poliomyelitis three days before term delivery in 1954. The baby which was taken to another hospital and later given poliomyelitis immunization did not develop poliomyelitis. The mother has been left with a paraplegia and is now again pregnant. Should she be given immunization against poliomyelitis now for protection of her second child, or will her acquired immunity protect the baby?*

M.D., Nebraska.

Answer.—Pregnant women are at increased risk of contracting poliomyelitis, owing not only to greater exposure but probably also to increased susceptibility. Immunization of the pregnant woman with poliomyelitis vaccine is therefore strongly indicated for protection of the woman herself, rather than primarily for passive protection of the newborn infant. In the young infant, significant levels of passively transmitted maternal antibody are detectable for only about three or four months. Recent studies indicate that active immunization of the infant with poliomyelitis vaccine may be started as young as 2 months of age.

Most of recent poliomyelitis epidemics have been shown to be due to type 1, poliomyelitis virus. Small outbreaks or sporadic endemic cases may be caused by types 1, 2, or 3. For the individual patient mentioned in the query, only by specific poliomyelitis neutralizing antibody tests could it have been determined which type caused her illness in 1954 and whether she had also acquired antibody to the remaining two types by previous inapparent infection. Active immunization of this patient with poliomyelitis vaccine is thus indicated, since she could still be susceptible to one or two types of poliomyelitis virus.

GRAFTING MUCOUS MEMBRANE TO THE LARYNX

To the Editor:—*The query in* The Journal *for July 20, 1957, page 1421, regarding the desirability of grafting turbinate mucosa, which has about the same thickness as septal mucosa, was noted with interest. Shrinkage of mucosa is very little when the full thickness is used, irrespective of the donor site. Another factor to be considered is that turbinate mucosa is spongier than buccal mucosa, because the turbinate mucosa rests upon a mass of lymphoid tissue which contains many mucous glands that open upon the surface of the mucosa. Without knowing any of the specific details, it would seem that buccal mucosa would be more desirable than turbinate mucosa.*

It is most desirable to take buccal mucosa away from the corner of the mouth. Of course, a great deal concerns the amount of mucous membrane that would be required for the graft. The one factor that must be kept in mind is that mucosa should not be cut over or around the opening of the parotid duct. Any other part of the buccal surface should be satisfactory.

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TREATMENT OF ACNE

To the Editor:—*In the Queries and Minor Notes section of* The Journal *for July 13, 1957, page 1291, three consultants discuss prevention of the premenstrual flare-up of acne. The only point of agreement among them is that two suggest the use of a diuretic "for a few days, beginning as soon as water retention is evident." When water retention is evident, treatment is too late. I would like to call attention to a recent study by Kalz and Scott (*A. M. A. Arch. Dermat. 74:493-503 *[Nov.] 1956), which showed that flare-ups could be prevented in most cases by giving ammonium chloride, preferably in a proprietary form, for 10 days prior to the menses. These investigators also found that water retention (measured by hyaluronidase and histamine wheal-resorption rates) tended to disappear on this diuretic regimen. This has been long assumed but never before proved.*

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The above comment was referred to a consultant whose reply reads as follows.—Ed.

To the Editor:—*There is no unanimity of opinion regarding the prevention of premenstrual papules and pustules of acne. The answers of the three consultant demonstrate this amply. However, it should be pointed out that one consultant recommended the use of ammonium chloride and that only one consultant advocated waiting until water retention became evident. The use of ammonium chloride has been accepted for many years and is widely employed in the prevention and treatment of premenstrual water retention. The article by Kalz and Scott claimed that a proprietary tablet containing ammonium chloride, homatropine, caffeine, and various fractions of the vitamin B complex prevented premenstrual exacerbations in 80% of 40 patients with acne and 10 patients with miscellaneous dermatoses, all of whom usually suffered flare-ups of their cutaneous conditions during the premenstrual period. However, excellent results were obtained in only 56% of the cases. Unfortunately, the criterion used for judging the benefit as "excellent" was not defined. Results obtained with ammonium chloride alone were not significantly inferior. It should be stressed that premenstrual acne may respond in a given patient to one or more of the many possible approaches or, in some instances, may be refractory to all the known therapeutic procedures.*

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

PHS Studies Use of Private, Military Hospitals
More Support for Use of Automobile Safety Belts
Tax Bill Hearings Limited to One Month
Folsom Assistant Outlines Views on Health Needs

PHS STUDIES POSSIBILITIES OF CLOSING FOUR GENERAL HOSPITALS

At the request of the Budget Bureau, the Public Health Service will survey four of its general hospitals, selected by the bureau, to determine if the patients could be cared for more effectively and economically in other institutions, such as local or military hospitals.

In announcing the surveys, Deputy Surgeon General W. Palmer Dearing emphasized that no immediate changes are contemplated in the existing program of medical care. "These surveys are objective, fact-finding projects to give up-to-date information of the best way to meet our medical care responsibilities in these four areas," he said.

The hospitals are at Chicago, Detroit, Memphis, Tenn., and Savannah, Ga. During the fiscal year ending last July 1, PHS records show the average daily patient load at the Chicago hospital was 118, and the average number of beds in operation 140. Figures for the other three are: Detroit, 131 average daily patient load and average of 150 beds; Memphis, 82 and 135; and Savannah, 95 and 120. The other eight PHS general hospitals are not included in the survey.

George St. J. Perrot, head of the PHS division of public helath methods, will direct the studies, which will be done by a team of specialists in medical care administration. Surveys start this month and will be completed by the end of November.

Patients at the four hospitals to be studied include American seamen, Coast Guardsmen, U. S. employees injured in line of duty, and some other groups, but not special PHS patients, such as persons with leprosy and narcotic addicts. The PHS estimates that its medical beneficiaries among merchant seamen, Coast Guardsmen, Coast and Geodetic Survey personnel, and dependents number 265,200. Not included in the total are the 4 million federal employees and employees of certain U. S. contractors who are eligible only for treatment of on-the-job injuries.

HOUSE GROUP SUPPORTS USE OF SAFETY BELTS FOR MOTORISTS

Without proposing any specific legislation, a House interstate subcommittee on traffic safety has found that safety belts, properly made and installed, are a valuable safety device and that the motoring public should give careful consideration to their use.

The subcommittee headed by Rep. Kenneth Roberts (D., Ala.) heard a number of medical witnesses during the first session.

In its report, the subcommittee declared: "The subcommittee feels that if the public has an opportunity to review the facts it will recognize the great safety value in using a seat belt. The subcommittee had great faith in the judgment of the American public."

It noted that the government is drafting specifications to establish minimum limitations for seat belts for use in government-owned vehicles.

TAX HEARINGS TO BE LIMITED TO ONE MONTH

The taxation hearings scheduled for early next session, where Jenkins-Keogh legislation will be one of the subjects taken up, will be limited to one month, and an effort will be made to reduce the number of witnesses. These and other details on the hearings were announced by Chairman Jere Cooper (D., Tenn.) of the House Ways and Means Committee.

Physicians will be particularly interested in the outcome of the Jenkins-Keogh section of the hearings. This legislation, supported actively by the American Medical Association and many other groups representing the self-employed, would authorize deferment of income taxes on a portion of income put into restricted annuity programs. Under present law corporations need not pay taxes on money put into annuity programs for their employees, but this advantage is denied to the self-employed.

Mr. Cooper disclosed this additional information about the hearings:

1. Because of the "extremely limited time available," the hearings, will be confined to the period from Jan. 7 to Feb. 7, 1958.

2. Retirement income and annuities (Jenkins-Keogh) will be two of at least a score of separate subjects to be taken up, but only three broad areas will be studied—questions relating to income, estate, and gift taxes.

3. Taxpayers with a similar interest will be expected to designate one spokesman for their group, but anyone may submit a statement for inclusion in the record. "Along this line," Mr. Cooper says, "it is requested that the various organizations which are affiliated with a national organization get together and coordinate their presentation to the committee through a single spokesman." The National Thrift Assembly, headquartered in Washington, D. C., was formed earlier this year to promote Jenkins-Keogh and to represent all groups supporting this legislation.

4. Those desiring to testify should submit their requests to the committee clerk in room 1102, New House Office Building, Washington 25, D. C., no later than Dec. 2, 1957. The request should outline the subject or subjects to be covered and designate the group or groups to be represented. Written statements, those intended both for insertion in the record and as the basis for testimony, should be in the committee's hands by Dec. 15.

In explaining the purpose of the hearings, Mr. Cooper said:

"The hearings will be conducted for the purpose of re-examining the basic policies underlying our tax laws. They will be utilized as a source of information which will guide the Committee on Ways and Means in formulating proposals looking toward revisions of our internal revenue laws in order to obtain a revenue system which is fair, equitable, neutral in impact between dollars of income from similar sources, responsive to changes in economic conditions, and capable of compliance and administration with a minimum of taxpayer and governmental effort, and which will at the same time produce the needed revenues for the Government. These are objectives which we must continually strive to achieve. They require continuing study and effort . . .

"The burden of taxation on our citizens is heavy. It is my hope that some relief from these burdens can be achieved next year as a result of our hearings and study. The combined impact of the individual income tax, the corporate income tax, and the various Federal excise taxes are so great that we are now in the seventh year in which total Federal tax collections have accounted for more than one-fifth of our gross national product. Further, this session of Congress has witnessed the largest Presidential budget in peacetime history."

MEDICAL NEEDS CITED BY ASSISTANT TO FOLSOM

Dr. Aims C. McGuinness, special assistant to Secretary Folsom, has listed what he believes to be some of the future medical needs of the United States. Talking at the dedication of the new chronic disease and rehabilitation facility of Thayer Hospital in Maine, Dr. McGuinness made these points:

Federal aid to medical schools and laboratories—The administration's proposed 225-million-dollar program would bring medical classrooms and laboratories much closer to current and projected needs. "To fail to help meet the needs of medical schools would be the worst kind of false economy."

Health services to ambulatory patients and chronically ill—General hospitals must broaden their services and achieve greater coordination. "There has been a growing conviction among health leaders that the general hospital should make its resources, staff, physical plant and scientific equipment available to the entire surrounding community. . . . In other words, the term 'hospital care' should include not only bed care but diagnostic service and service to ambulatory patients as well."

Rural health—In the more rural areas where hospital facilities might not be available at all, the most essential health services could be provided through diagnostic and treatment centers. (He did not elaborate on how this would be brought about.)

Health aid to the elderly—The principles of voluntary insurance should be applied to the prepayment of medical expenses of a larger proportion of elderly people. "This administration believes that health insurance can advance most effectively through voluntary action. . . ." The PHS plans to develop demonstrations of home-care services, health maintenance clinics, and restorative services.

Hospital care costs—It is essenial that the problem of rising costs of hospital care be solved. Physicians must constantly ask themselves if they are putting a patient in a hospital when he could be served as well or better on an ambulatory basis.

Dr. McGuinness noted that, by 1954, 70% of the national need for beds in general hospitals had been met, but only 12% of the need for beds for patients with chronic diseases had been met. "The major emphasis of the hospital survey and construction program had been in providing facilities for the acutely ill," he told the group. "There had been little emphasis on the health services needed by ambulatory patients and those who were chronically ill and impaired."

He said that in the field of rehabilitation, the picture is much brighter and that the expanded Hill-Burton program will hasten development of additional rehabilitation programs for the disabled and handicapped.

SYMPOSIUM ON ANTIBIOTICS OCT. 2-4

The fifth annual symposium on antibiotics is scheduled for Washington, D. C., Oct. 2-4, when recent discoveries and advances will be reported by medical scientists from the United States and other countries. The program lists 161 papers to be delivered. Joint sponsors of the meeting are the Food and Drug Administration and the journals *Antibiotics and Chemotherapy* and *Antibiotic Medicine and Clinical Therapy*.

A number of new antibiotics not yet commercially available will be described, including sulfocidin, telomycin, and pimaricin. Scientists from Czechoslovakia will report on "antibiolymphins," lymphotropic antibiotics that are combinations of antibiotics with such substances as polyacrylic acids. They are reported to have high affinity for certain body tissues.

Several papers will be devoted to amphotericin, an antibiotic said to be effective clinically in certain difficult infections, including systemic mycoses.

The following panel discussions are scheduled for each afternoon session:

Oct. 2, rheumatic fever prophylaxis, with Dr. B. B. Breese of Rochester, N. Y., as moderator.

Oct. 3, chemotherapy of diseases affecting infants and the aged, with Dr. Burton A. Waisbren of Milwaukee as moderator.

Oct. 4, the present status of antitumor and antiviral antibiotics, with Dr. C. Chester Stock of the Sloan-Kettering Cancer Research Institute as moderator.

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SURGICAL COMPLICATIONS OF PREGNANCY

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and
Irwin W. Rovner, M.D., Washington, D. C.

EXTRAUTERINE surgical complications of pregnancy are uncommonly encountered. However, when such complications do occur they may be of serious significance. Abortion, the delivery of a previable fetus, premature labor, or, in unusual circumstances, the death of the mother may be the ultimate result.

That surgical complications of pregnancy are not common is borne out by the fact that in the five-year period from Jan. 1, 1952, through Dec. 31, 1956, only 41 patients were operated upon at the District of Columbia General Hospital and the George Washington University Hospital for extrauterine complications of pregnancy. Appendectomy was done in 24 cases, salpingo-oophorectomy or oophorectomy in 12, and cholecystostomy, nephrectomy, pyelolithotomy, lysis of adhesions, and cecostomy in one each. During that five-year interval there were 28,067 deliveries at the District of Columbia Hospital and 17,653 deliveries at the George Washington University Hospital, making a combined total of 45,720 deliveries. Thus this complication occurs in less than 0.1% of all delivered patients. The above figures do not include patients upon whom surgery was done for ruptured intracranial aneurysms, as neurological complications of pregnancy are considered to be outside the scope of this paper.

There were two maternal deaths in this series. The first was due to acute pancreatitis occurring in the middle trimester. The second occurred in a patient in early pregnancy as a result of peritonitis from ulcerative colitis with perforation. These two deaths emphasize the potential gravity of surgical complications of pregnancy.

Extrauterine surgical complications of pregnancy, though rare, are likely to be serious. The most frequent such complication, in a series of 45,720 deliveries, was appendicitis. The urgency of the condition and the difficulty of the differential diagnosis are such that it is better to err on the side of unconfirmed diagnosis than to procrastinate and err on the side of missed diagnosis. Twenty-four appendectomies were done in this series, and the diagnosis was found correct in 22. Less frequent complications were torsion of an ovary or uterine tube, intestinal obstruction, acute cholecystitis, and the so-called round ligament syndrome. It is sometimes difficult to make a differential diagnosis between these conditions and others such as uterine anomalies, degeneration or torsion of a myoma, ectopic pregnancy, and premature separation of the placenta which may cause acute abdominal pain. Surgery was necessary in altogether 41 patients of this series. There were two maternal deaths, one from acute pancreatitis and the other from perforation in a patient with ulcerative colitis. Delay in operating is commonly excused by the fear of inducing an abortion, but abortion is less likely to follow after surgery than after procrastination in the face of persistent abdominal symptoms.

From the George Washington University School of Medicine.

Read before the Section on Obstetrics and Gynecology at the 106th Annual Meeting of the American Medical Association, New York, June 7, 1957.

Differential Diagnosis

The most frequent surgical complication of pregnancy is appendicitis. That diagnosis must always be kept in mind in any patient who has nausea and vomiting and has pain in the lower part of the abdomen during any stage of pregnancy. Inflammation of a Meckel diverticulum must also be kept in mind as a diagnosis in any patient whose symptoms are suggestive of appendicitis.

Second only to acute appendicitis is the complication of a twisted ovary or fallopian tube. Torsion of an ovarian cyst is much more common than torsion of the oviduct. From a differential diagnostic standpoint, however, the diagnosis between these two entities is usually not made until laparotomy.

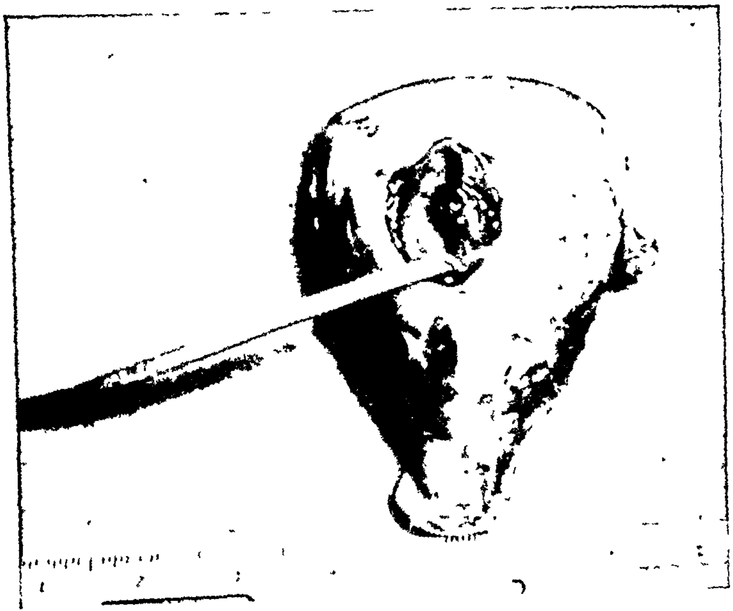

Fig. 1.—Perforation of uterus by means of a catheter in attempt to produce an illegal abortion.

Volvulus of the intestine or intestinal obstruction must be ruled out as a possibility in any pregnant patient who is having nausea or vomiting and cramping abdominal pain and in whom there has been previous abdominal surgery. Incomplete intestinal obstruction during pregnancy may be a particularly difficult diagnostic problem.

Acute cholecystitis can occur during pregnancy, but it is extremely rare. A perforated viscus may also produce an acute abdomen, but other than for ruptured ectopic gestation it is quite uncommon during pregnancy.

There are two other entities, neither of which has been accorded much space in the literature on obstetrics, which may simulate an acute abdomen in pregnancy. The first of these is the so-called round ligament syndrome which many pregnant patients may have from the 14th through the 22nd week of gestation. The pain is due to stretching of the round ligaments. It is usually more pronounced on the patient's right side due to dextrorotation of the uterus. The diagnosis of round ligament pain can usually be verified by palpating the round ligaments and noting that direct palpation of the ligament causes the identical pain of which the patient complains. One should be extremely careful not to overlook the presence of appendicitis in a patient who has tenderness of the round ligaments but the two conditions rarely coexist. Unnecessary appendectomies can be avoided, however, if round ligament pain is kept in mind on each occasion when one is confronted with a pregnant patient who has pain in the right lower quadrant in the absence of fever and leukocytosis. Usually patients with round ligament pain will not have nausea and vomiting, but the pain may be more severe than the pain of early appendicitis.

The second benign condition which may cause a differential diagnostic problem is a gestation in an anomalous uterus. If the pregnancy is in one horn of a bicornuate or didelphys uterus, the patient may have rather acute abdominal pain in the midtrimester due to the inequality of the uterine enlargement in the two halves of the uterus. Round ligament pain or pain from an anomalous uterus should be considered in the differential diagnosis of the acute abdomen during the middle trimester of pregnancy.

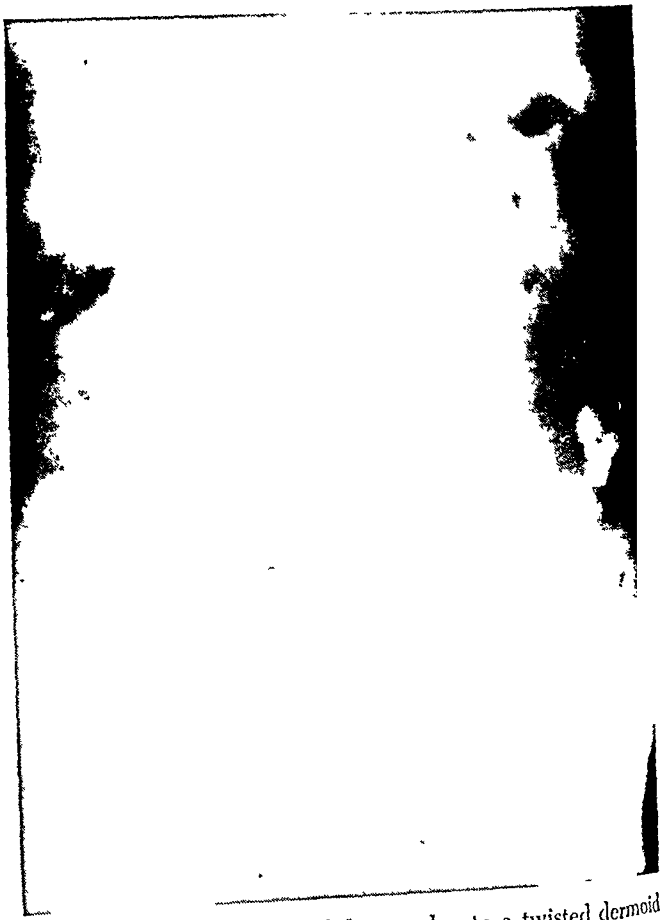

Fig. 2.—Acute surgical abdomen due to a twisted dermoid cyst at the patient's 18th week of gestation. Note the presence of a tooth in the dermoid, thus making positive preoperative diagnosis relatively easy.

Another source of pain in the lower part of the abdomen which may be encountered during the second three months of gestation is degeneration or torsion of a myoma. Such a diagnosis is usually easy to make because of the presence of a painful tumor or tumors in the uterus. As an entity it must be considered in the older pregnant patient who is having pain in the lower part of the abdomen. It may, of course, be the causative agent in the production of an acute abdomen.

From a differential diagnostic standpoint one usually has to consider other uterine causes of pain which may simulate extrauterine pathological conditions. Perforation of the uterus in the first trimester by attempts at abortion may cause an acute abdomen (fig. 1). The possibility of an intra-abdominal foreign body must be considered in all patients with known or presumed illegal abortions. The acute abdominal findings in the patient whose perforated uterus is shown in figure 1 were the result of peritonitis and the presence of the foreign body in the abdomen. After a hysterectomy performed at the District of Columbia General Hospital, the patient recovered.

Premature separation of the placenta with concealed hemorrhage or rupture of the uterus, particularly if the latter occurs during the early part of the last trimester, may simulate an acute surgical abdomen. Patients who have acute toxemia of pregnancy may have severe generalized abdominal pain due to distention of the capsule of the liver. The presence of toxemia usually allows one to make the diagnosis of liver pain rather than a diagnosis of a surgical complication. Rupture of the liver, however, may occur in severe toxemia and should not be overlooked.

Ectopic pregnancy is a condition which is not strictly within the confines of this paper. However, extrauterine gestation is the entity which must be kept foremost in one's thoughts in the differential diagnosis of an acute abdomen in any patient between 15 and 50 years of age who has an amenorrhea of more than six weeks' duration, if her previous menstrual periods had been normal. In addition, ruptured ectopic pregnancy must be considered in any menstruating patient with irregular bleeding who has anemia out of proportion to known external blood loss. If those two facts are kept in mind, the diagnosis of a ruptured ectopic pregnancy should rarely be missed.

Treatment

The management of appendicitis during pregnancy requires clinical awareness that the condition may exist. Any pregnant patient with nausea and vomiting, persistent pain in the lower part of the abdomen which may have localized to the right lower quadrant of the abdomen, and signs of peritoneal irritation must be adjudged to have appendicitis. Unfortunately, procrastination in treatment is almost synonymous with the diagnosis of appendicitis in pregnancy. Early positive diagnosis and prompt appendectomy are the keys to successful management of this problem.

Approximately 90% of the 24 patients in this series who had appendectomies during pregnancy had acute appendicitis. A 10% error in the diagnosis of appendicitis in pregnancy is a permissible margin of error. It is much better to err on the side of an unconfirmed diagnosis of acute appendicitis than to err on the side of a missed diagnosis. Appendiceal abscesses which result from failure of recognition of acute appendicitis may seriously complicate pregnancy and may cause abortion or premature labor as a result of the septic process. The involution of the uterus which occurs after abortion or premature labor further complicates the appendiceal abscess by breaking down the defensive barriers which the body has set up to wall off the abscess. Appendectomy, promptly and properly done with the patient under adequate anesthesia, should rarely result in postoperative abortion. Postoperative hormonal therapy is not essential in properly managed patients. It is well to remember that a patient may still die from a ruptured appendix or its complications.

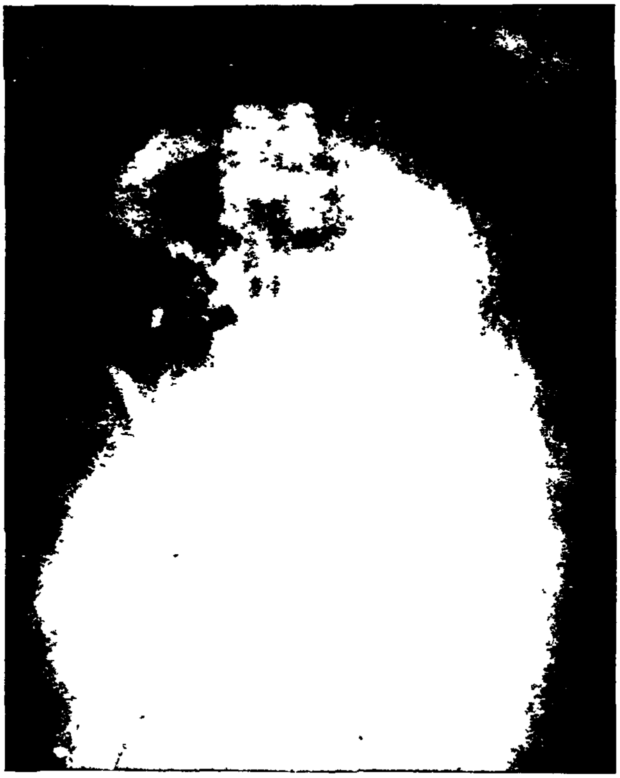

Fig. 3.—Preoperative film showing an ureteral calculus and a fetus of a patient in the 36th week of gestation with acute abdominal pain. The acute symptoms of which the patient complained were originally thought to be due to the calculus.

The diagnosis of appendicitis from the laboratory standpoint is usually not so easy in the pregnant as in the nonpregnant state because of the normally higher leukocyte count in the pregnant patient. Reliance upon laboratory findings rather than upon clinical judgment when considering the possibility of appendicitis in pregnancy may lead to an erroneous impression and delay in treatment.

The diagnosis of a twisted ovarian cyst during pregnancy may be more difficult than that of the diagnosis of appendicitis. The symptoms of the former are usually not quite so definite as are those of appendicitis. However, torsion of an adnexal structure must be considered in any patient who is pregnant and who has persistent severe pain in the lower part of the abdomen. The pain associated with torsion of an ovary is usually more severe than that of appendicitis; vomiting is not as common; and ordinarily an adnexal mass is palpable. If it has been established previously that the patient had an adnexal tumor, the diagnosis is made easier.

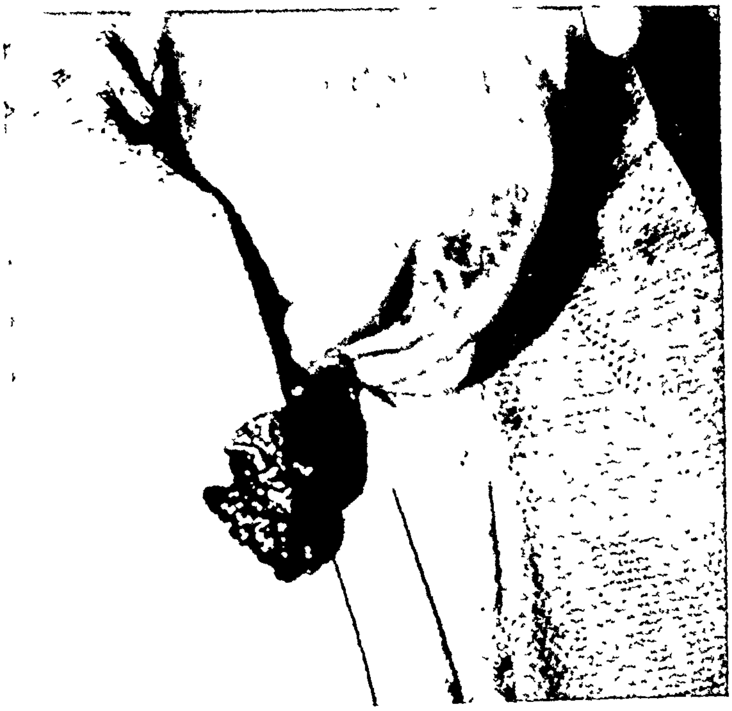

Fig. 4.—Torsion of fallopian tube, shown just after cesarean section, found at exploratory laparotomy in same patient whose preoperative film appears in figure 3 The torsion was found to be the cause of the acute abdomen.

The diagnosis of a twisted ovary is almost infallible if the presence of a dermoid cyst had been established by means of an x-ray during or prior to the gestation. Due to the high "torsion potential" of a dermoid cyst, such a tumor should be removed after the patient's 16th week of gestation if it is asymptomatic and before then if it is causing any symptoms, such as pain.

A flat film of the abdomen should be taken in any patient in whom a twisted adnexal tumor is suspected. The presence of a calcified structure such as a tooth makes the preoperative diagnosis, namely, that of a twisted dermoid cyst, much more certain (fig. 2). Immediate extirpation is imperative when the diagnosis of a twisted dermoid has been made.

If the patient has a twisted ovary or tube, it is important that the infundibulopelvic ligament be clamped before an attempt is made to untwist the infarcted tumor. Failure to observe this precaution may cause the death of the patient by means of a pulmonary embolism. The embolus has its origin from a thrombus in the ovarian vein and may be released when the infarcted cyst and its pedicle are untwisted.

All other persistent adnexal tumors should be removed after the patient's 16th week of gestation, because there is a significant number of patients who will have either serous cystadenomas or pseudomucinous cystadenomas of the ovary or ovaries accompanying an otherwise normal pregnancy. By waiting until the patient's 16th week of pregnancy to do the surgery two purposes are served: 1. If the tumor originally palpated is a large corpus luteum cyst, it will usually be absorbed by the 16th week. 2. The probability of postoperative abortion is greatly diminished after the 16th week of gestation. Postoperative hormonal therapy is not essential.

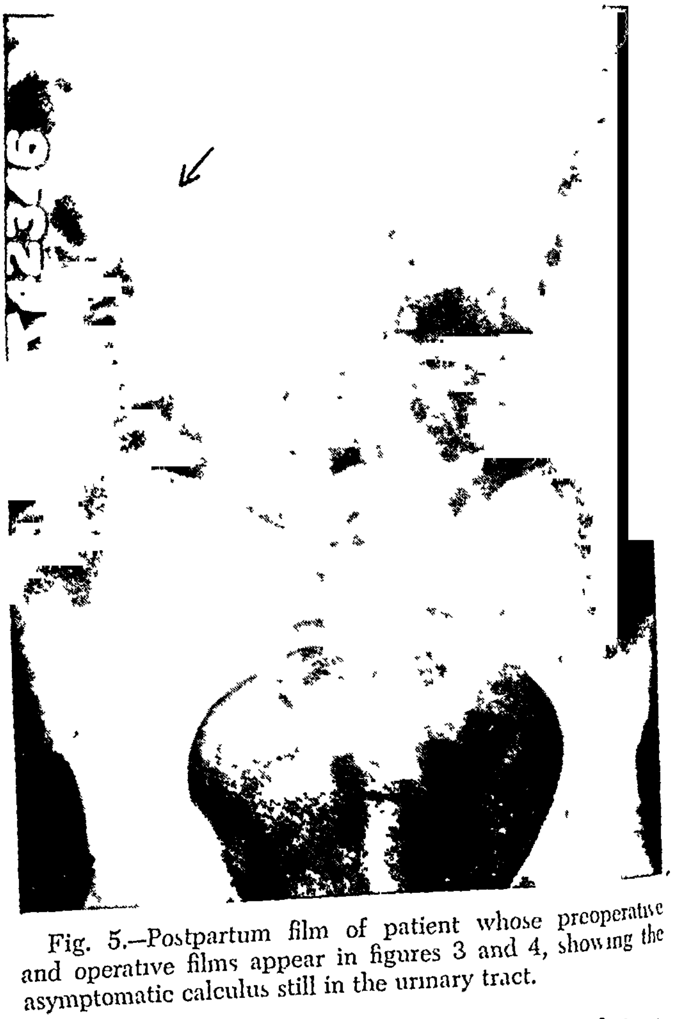

Fig. 5.—Postpartum film of patient whose preoperative and operative films appear in figures 3 and 4, showing the asymptomatic calculus still in the urinary tract.

Volvulus of the intestine or an intestinal obstruction must be given thoughtful cognizance in any patient who has persistent vomiting in pregnancy accompanied by cramping abdominal pain. Most pregnant patients who have vomiting and intestinal cramps of short duration will have gastroenteritis, but the severity of the complication of intestinal obstruction should make the physician constantly include that entity in the differential diagnosis in all patients in this category. If that is done, the diagnosis of intestinal obstruction will not be overlooked. The compromise of the intestine and its blood supply by obstruction is a much more serious complication than is acute appendicitis or a twisted ovarian cyst. Flat films of the abdomen will usually aid in establishing the proper diagnosis. Prompt therapy, whether medical or surgical or both, will be dictated by the subsequent course of the patient, but early active treatment is lifesaving in either instance.

The possibility of pyelonephritis or even more uncommonly the presence of a renal or ureteral calculus must be considered in any patient with persistent abdominal pain. The diagnosis usually is quite apparent due to the presence of pus in the urine, but if there is complete urinary blockage from the affected kidney, the urine may be clear even in the presence of pyelitis. The presence of pus in the urine, fever, and flank pain will usually establish the diagnosis of pyelitis without too much difficulty, and thus exploratory abdominal surgery can be avoided.

Pain due to a renal or an ureteral calculus may be difficult to diagnose, for many calculi are radiolucent. Occasionally the previously established presence of a calculus may lead to a missed diagnosis of some other entity. That problem was encountered recently at the District of Columbia General Hospital in a 48-year-old patient who was known to have an ureteral calculus which antedated her gestation. She was admitted to the hospital in the 36th week of pregnancy with abdominal pain (fig. 3). The proper diagnosis of a twisted fallopian tube as the cause of her pain was obscured by the more obvious diagnosis of ureteral colic (fig. 4 and 5).

Summary and Conclusions

The surgical complications of pregnancy are extremely uncommon. In almost all instances improper or delayed diagnosis will be followed by serious consequences for the fetus, for the mother, or for both. Excellent clinical judgment combined with proper laboratory tests are usually needed if the correct diagnosis of the acute abdomen in pregnancy is to be made and prompt definitive treatment initiated. The presence of pregnancy always makes the diagnosis of an acute abdomen more tenuous and the physician more wary of making what might otherwise be a confident correct diagnosis.

Extrauterine surgical complications of pregnancy are uncommonly encountered. The accurate diagnosis of such complications is usually made more difficult by the presence of pregnancy. Procrastination in the initiation of proper treatment is commonly encountered in the management of the pregnant patient who has an acute surgical abdomen. The failure to initiate prompt therapy is usually due to well-meant apprehension that the treatment may bring about abortion. Pregnancy termination, however, is generally increased in direct proportion to the length of time which is allowed to elapse from the onset of symptoms to the initiation of definitive treatment. The two maternal deaths in our series of 41 patients emphasize the potentially serious significance of all surgical complications in the pregnant patient.

901 23rd St. N. W. (Dr. Barter).

Literature and Medicine.—This Atomic Age of ours has witnessed the downfall of many traditions. Only a few weeks ago I stood once again entranced by the palaces in fabulous Venice and their reflections, wan and faded, on the dead green waters of the canals. Within their walls the tragedy immortalized long ago by Alfred de Musset is still unfolding: suits of armor are rusting away piece by piece; tapestries are fading away blossom by blossom, while the cressets stand empty of candles, and, for lack of powder, the wigs of the lackeys hang limp. There they stand, these ancient palaces, as though waiting to be closed forever or at best converted into prosaic flights of offices. In a like manner modern medical culture has been denying its proud classical heritage and contracting its once vast encylopedic and humanistic domains, to become but an aggregate of ever more and more specialized techniques. Since, as time goes on, the physician exercises less and less his imagination and literary ability, scientific expression is slowly being stifled. As Sir James Barrie, the magnificent creator of Peter Pan, once said, "The man of science appears to be the only person who has something to say just now and the only man who does not know how to say it." And yet, paradoxically enough, the physician, more so than other professionals, has truly artistic strains hidden within his being, though he seldom allows them to burst from their shell for the edification of his fellow men. The physician . . . experiences, like few others can, the desire to relate what he knows or thinks, what he sees or dreams. The proof is that no other profession as medicine has provided so many famous writers. In the course of the world's history, physicians have outshone all other professionals in the writing of romance and philosophy.—Félix Marti-Ibáñez, M.D., Minerva and Aesculapius: The Physician as Writer, *International Record of Medicine and General Practice Clinics*, November, 1956.

SURGICAL CONVALESCENCE—WHEN DOES IT END?

N. Henry Moss, M.D., Cletus W. Schwegman, M.D.
and
F. Curtis Dohan, M.D., Philadelphia

There is wide diversity of opinion among physicians concerning the duration of postsurgical convalescence in uncomplicated cases. The extent of the variation was indicated by the replies of 229 physicians to a questionnaire. Their current practice was indicated in regard to the duration of the convalescent period of otherwise healthy postsurgical patients. Thus, for the same hypothetical case, the recommended interval for return to "light work" after appendectomy varied from 5 to 30 days (average 14 days) and for heavy work from 7 to 60 days (average 28 days). After inguinal herniorrhaphy the recommended time to return to light work ranged from 7 to 84 days (average 24 days) and for heavy work ranged from 20 to 180 days (average 54 days). A wide range of opinion was also expressed for hemorrhoidectomy and cholecystectomy. These wide disparities of opinion were manifested in each of the four groups of physicians. Surgeons tended to recommend earlier return to work than industrial physicians and general practitioners, but each group showed a wide range of opinion. This wide diversity indicates a lack of adequate criteria for determining the duration of convalescence. Recent experience of the Air Force and others indicates that it is safe to return the individual to full activity after a considerably shorter period of postsurgical convalescence than is the current practice of the majority of physicians as judged by insurance statistics and this opinion survey.

Among those questions usually asked by patients anticipating an operation are "How long will I be in the hospital?" and "How long before I return to work?" Experience and statistics have demonstrated that a marked reduction in postoperative hospital stay has occurred in the past 10 years.[1] It is our impression that it has not been associated with an equivalent decrease in the total convalescent time. A study of the literature on surgery reveals that no adequate criteria for the optimum duration of postoperative convalescence have been established.[2] Management of patients in the latter phases of surgical convalescence has been based upon impression and vague concepts rather than objectively supported evidence.

In order to better ascertain current practice in the determination of the length of postoperative convalescence the study presented in this paper was undertaken.

Methods and Response

A questionnaire was prepared and sent to surgeons, industrial physicians, and general practitioners throughout the United States. The questionnaire requested the current opinion of these practicing physicians regarding the proper time for an individual to return to work after certain selected operations of limited magnitude. The questionnaire form for certain general surgical procedures is shown in figure 1. In each of these cases the following assumptions were made: 1. The individual was essentially healthy except for the disability that required the operation. 2. The patient's weight was within normal range. 3. There were no complications. 4. Adequate follow-up medical care was available in the area in which the patient lived. 5. The patient returned to the job which he had held without difficulty for at least one year prior to the operation.

A response to the questionnaire was obtained from 229 physicians. This included 70% of the professors of surgery, 80% of the board certified general surgeons, 52% of industrial physicians, and 41% of general practitioners to whom questionnaires were sent. The replies are reported as percentage of the group samples for each of the respective physician groups. It was apparent in the replies that most physicians tend to think in terms of weeks or months rather than days in determining the time for a patient to return to work.

General Considerations and Types of Operation

Sex and Age of Patient.—The factors of sex and age played only a minor role in determining the total duration of surgical convalescence. In the opinion of 95% of the physicians no distinction in the length of the convalescent period was made between males and females. Evaluation of the age factor in patients with herniorrhaphy revealed that in the opinion of the majority of the physicians the age of the patient made no difference in determining the length of the convalescent period. Of those who made such a distinction, the mean time difference for herniorrhaphy was 12.6 days. Insurance statistics

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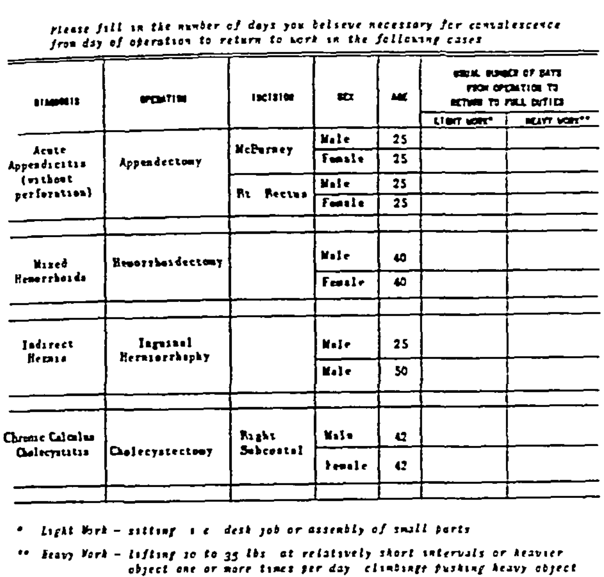


please fill in the number of days you believe necessary for convalescence from day of operation to return to work in the following cases

DIAGNOSIS	OPERATION	INCISION	SEX	AGE	USUAL NUMBER OF DAYS FROM OPERATION TO RETURN TO FULL DUTIES	
					LIGHT WORK*	HEAVY WORK**
Acute Appendicitis (without perforation)	Appendectomy	McBurney	Male	25		
			Female	25		
		Rt Rectus	Male	25		
			Female	25		
Mixed Hemorrhoids	Hemorrhoidectomy		Male	40		
			Female	40		
Indirect Hernia	Inguinal Herniorrhaphy		Male	25		
			Male	50		
Chronic Calculus Cholecystitis	Cholecystectomy	Right Subcostal	Male	42		
			Female	42		

* Light Work – sitting i e desk job or assembly of small parts

** Heavy Work – lifting 30 to 35 lbs at relatively short intervals or heavier object one or more times per day climbing pushing heavy object operating "heavy" foot pedals jumping running etc

Fig 1 —Questionnaire sent to professors of surgery, board certified surgeons, industrial physicians, and general practitioners of medicine (American Academy of General Practice)

do show a tendency toward prolongation of the convalescent period in middle age and beyond (fig 2).

Appendectomy—The interval between appendectomy and return to light work varied between 1 to 4 weeks and to heavy work from 1 to 10 weeks Great variation existed in all four physician groups. It is noteworthy that most industrial physicians expressed the opinion that patients who have undergone appendectomy should have a longer convalescence than that signified by the physicians in the other groups The average number of days lost from work after appendectomy was 14 days for light work and 28 days for heavy work (fig. 3).

Hemorrhoidectomy.—The convalescent period between hemorrhoidectomy and return to work averaged 13 days for light work and 22 days for heavy work. Wide variation of opinion existed in all physician groups (fig 4).

Inguinal Herniorrhaphy — Great variation of opinion existed in all physician groups in this study. The range for convalescence for a 50-year-old man was 1 to 10 weeks for return to light work and 2 weeks to 6 months for return to heavy work. The average time lost was 24 days for light work and 54 days for heavy work. Results for a 25-year-old man are shown in figure 5. The interval between inguinal herniorrhaphy and the return to either light or heavy work was only slightly influenced by age.

Cholecystectomy.—After cholecystectomy the average number of days lost before return to light work was 22 days and before return to heavy work 45 days. Figure 6 again shows the wide range of opinion.

A summary of the data reveals certain characteristics common to each of the operative procedures included in this study. 1. A wide disparity of opinion as to the length of the convalescent period exists in all physician groups. 2 Return to heavy work in

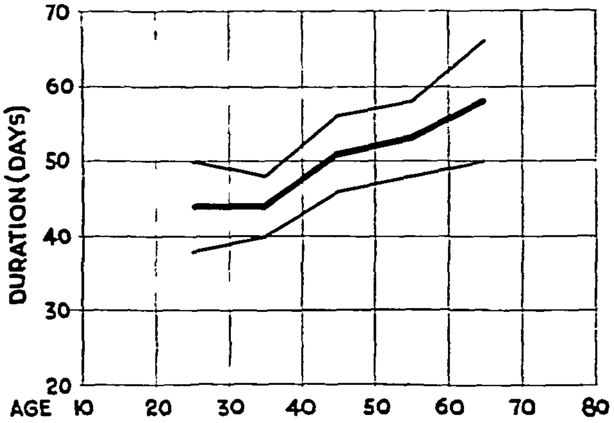
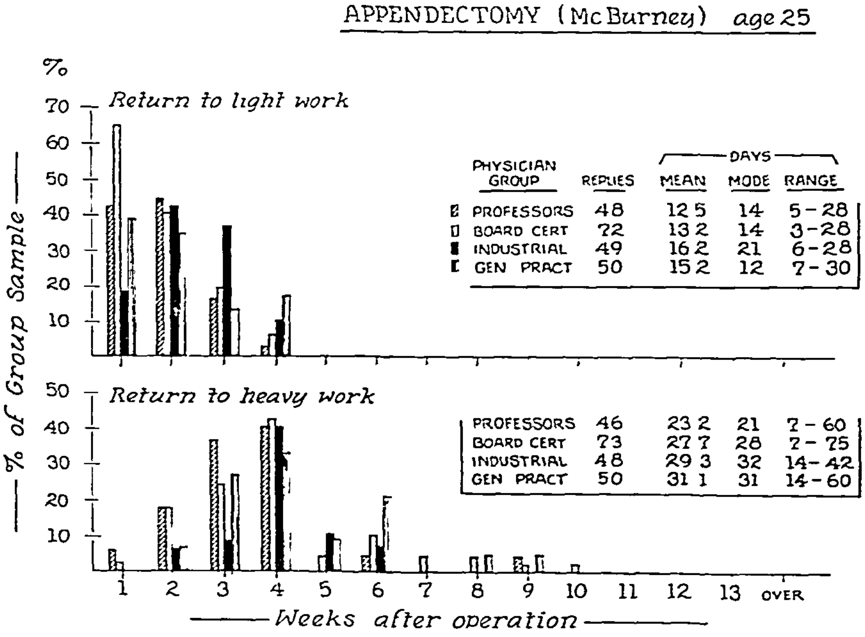


Fig 2 —Apparent effect of age on "period of disability" in male patients with hernia The middle, heavier line denotes the mean, the other two lines, 95% confidence limits.



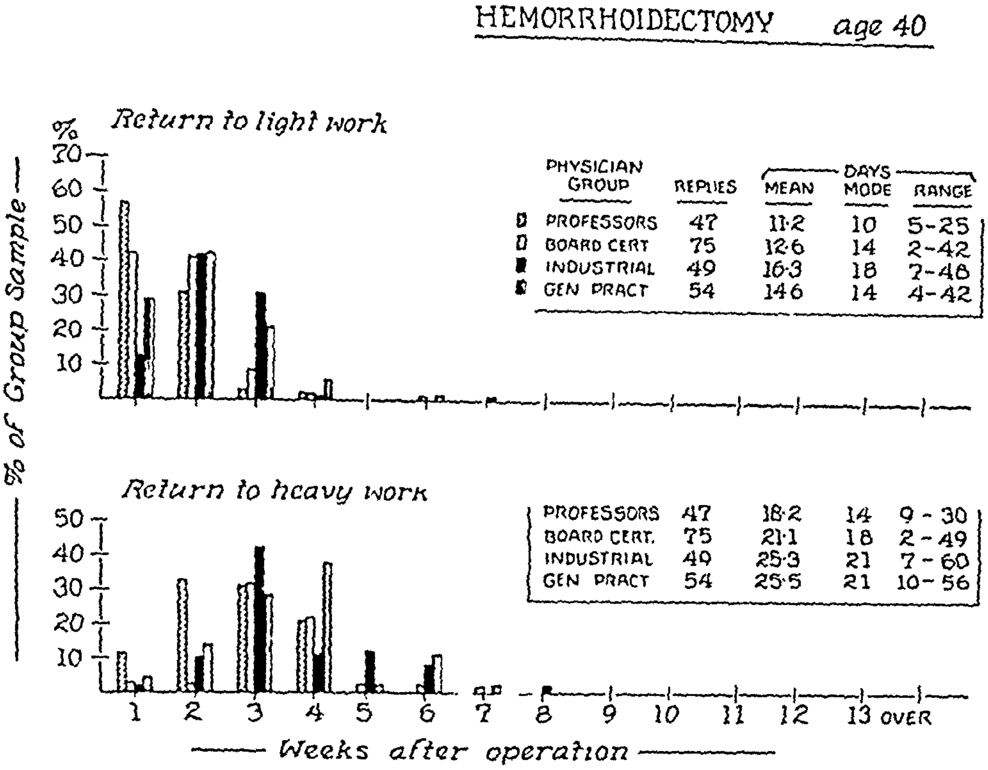
Return to light work

PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
▨ PROFESSORS	48	12 5	14	5 - 28
☐ BOARD CERT	72	13 2	14	3 - 28
■ INDUSTRIAL	49	16 2	21	6 - 28
▯ GEN PRACT	50	15 2	12	7 - 30

Return to heavy work

PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
PROFESSORS	46	23 2	21	7 - 60
BOARD CERT	73	27 7	28	7 - 75
INDUSTRIAL	48	29 3	32	14- 42
GEN PRACT	50	31 1	31	14- 60

Fig. 3 —Time lost from work after appendectomy by means of a McBurney incision in 25-year-old patient. These data were compiled, according to the physician group, from answers to the questionnaire shown in figure 1 sent to physicians. Answers given in days (as requested) are adjusted to nearest full week (thus 16 days would be recorded as two full weeks) for charting purposes.



Return to light work

	PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
▯	PROFESSORS	47	11·2	10	5-25
▯	BOARD CERT	75	12·6	14	2-42
▮	INDUSTRIAL	49	16·3	18	7-48
▮	GEN PRACT	54	14·6	14	4-42

Return to heavy work

PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
PROFESSORS	47	18·2	14	9 - 30
BOARD CERT.	75	21·1	18	2 - 49
INDUSTRIAL	49	25·3	21	7 - 60
GEN PRACT	54	25·5	21	10 - 56

Fig. 4.—Time lost from work after hemorrhoidectomy in 40-year-old patient. For explanation about data see figure 3.

the opinion of physicians requires approximately twice as long a postoperative convalescent period as return to light work. 3. Surgeons tended to return their patients to work somewhat earlier than did industrial physicians and general practitioners.

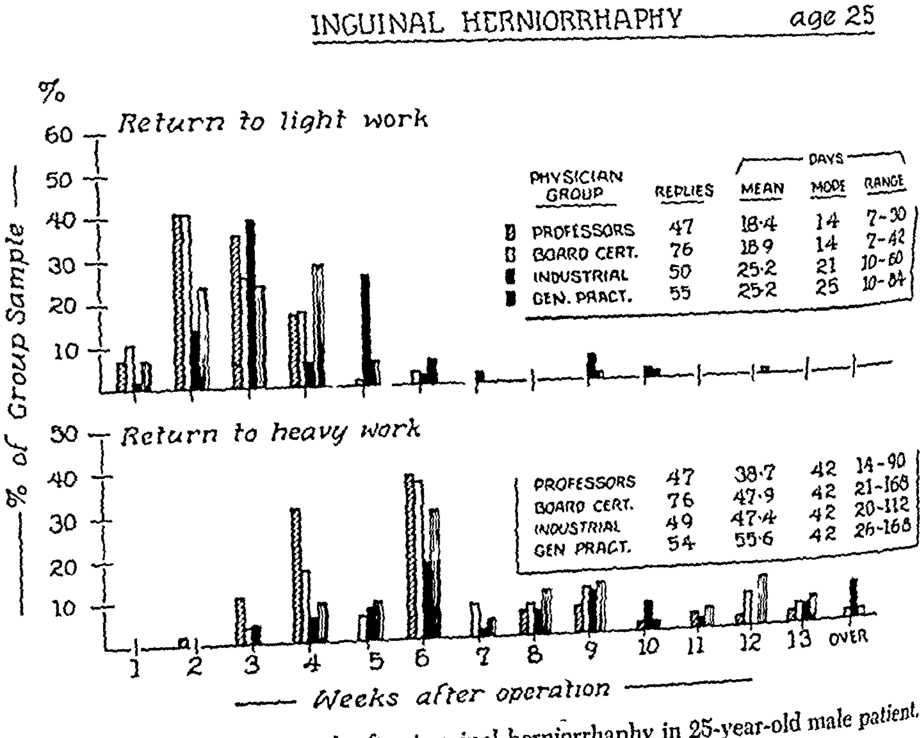
Comment

Comparison of the statistics from the Travelers Insurance Company with those of the questionnaire survey shows a close correlation. Compare figures 3 and 7, 4 and 8, and 5 and 9. This would suggest that the opinion of the responsible physician is one of the major factors in determining the time of return to full activity after surgery. It must be pointed out, however, that whereas the correlation is close it is not exactly the same, for the insurance data include some older age groups other than those included in the questionnaire and also there is no distinction in the insurance data between return to light work and to heavy work. In addition, sociological and economic factors play a small role that is difficult to evaluate objectively.

However, the fact remains that there is as wide a range of opinion in the duration of convalescence in the uncomplicated hypothetical cases as that found in insurance data.

Physiological Factors.—Experimental evidence shows maximum wound strength is obtained in two to three weeks.[3] Clinical observation by numerous authorities would support these data in dealing with human beings.[4] Therefore, it appears in an uncomplicated case in an otherwise healthy individual that fear of disruption of the wound after the third week is usually ill-founded. In fact, proponents of early ambulation have stressed the aspect of earlier and improved wound healing as an advance of that concept.

Francis Moore and his co-workers at the Peter Bent Brigham Hospital, Boston, have made numerous studies of the metabolic response during the convalescent period after surgery.[5] Figure 10 indicates in diagrammatic fashion that after even a major surgical procedure, such as resection of the intestine, the adrenal cortical function has returned to normal in approximately 8 to 10 days and that the nitrogen balance is normal by approximately 22 to 26 days. Studies by Hardy and Ravdin [6] and Hardy, Richardson, and Dohan [7] have shown the same pattern of response. It appears that there are no measurable metabolic abnormalities which can explain the long period of convalescence thought necessary by many surgeons and physicians.



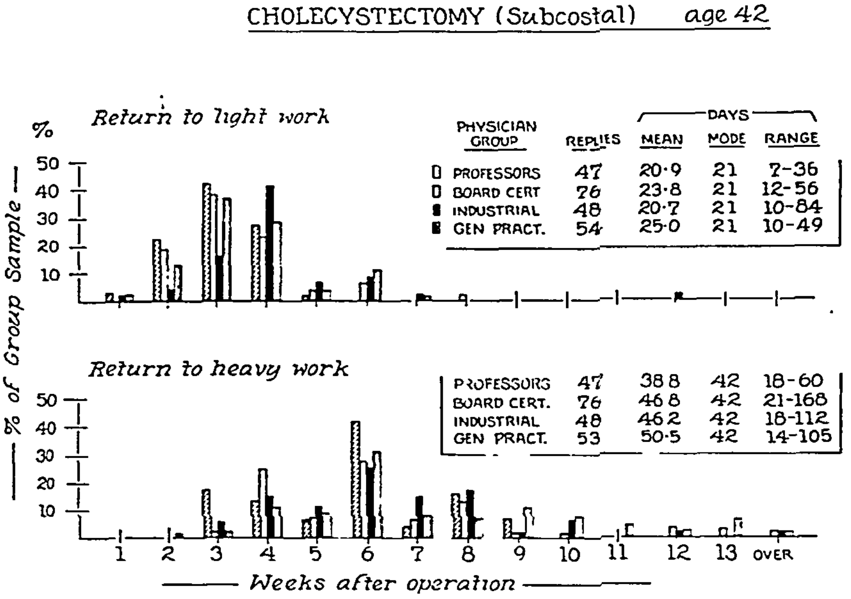
Return to light work

	PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
▯	PROFESSORS	47	18·4	14	7-30
▯	BOARD CERT.	76	18·9	14	7-42
▮	INDUSTRIAL	50	25·2	21	10-60
▮	GEN. PRACT.	55	25·2	25	10-84

Return to heavy work

PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
PROFESSORS	47	38·7	42	14-90
BOARD CERT.	76	47·9	42	21-168
INDUSTRIAL	49	47·4	42	20-112
GEN PRACT.	54	55·6	42	26-168

Fig. 5.—Time lost from work after inguinal herniorrhaphy in 25-year-old male patient. For explanation about data see figure 3.



PHYSICIAN GROUP	REPLIES	DAYS MEAN	DAYS MODE	DAYS RANGE
▯ PROFESSORS	47	20·9	21	7-36
▯ BOARD CERT	76	23·8	21	12-56
▮ INDUSTRIAL	48	20·7	21	10-84
▮ GEN PRACT.	54	25·0	21	10-49

PROFESSORS	47	38·8	42	18-60
BOARD CERT.	76	46·8	42	21-168
INDUSTRIAL	48	46·2	42	18-112
GEN PRACT.	53	50·5	42	14-105

Fig. 6.—Time lost from work after cholecystectomy in 42-year-old patient. For explanation about data see figure 3.

Experience with Shorter Convalescence.—Since there are no known metabolic abnormalities or evidences of wound weakness after approximately the third postoperative week in the uncomplicated case, it would be extremely difficult to develop an objective measurement of suitability for return to preoperative activity. It appears that an empirical approach must therefore prevail. The experience of the armed forces[8] suggests that it is "safe" to return the individual to full activity at considerably earlier periods than has been the general practice in the past. Col. D. S. Wenger[9] has reported recently the return to duty of Air Force personnel in the 20-to-29-year age group in an average time of 16.4 days after inguinal herniorrhaphy, 12.1 days after appendectomy, and 12.8 days after hemorrhoidectomy. These figures should be contrasted with the insurance experience previously noted and the average hypothetical times as indicated in the survey of physician opinion.

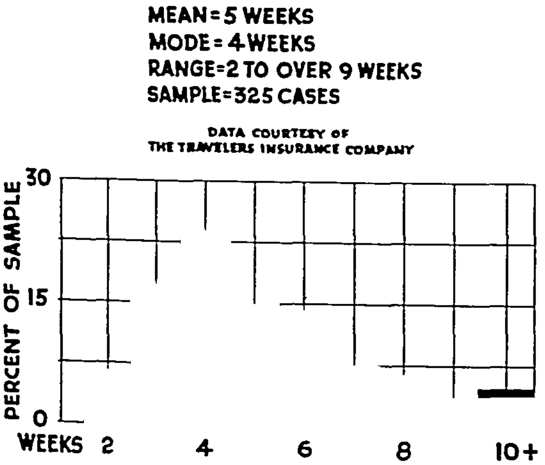


Fig. 7.—"Period of disability" after appendectomy in male patient.

Evidence from other sources and personal communications indicate a similar pattern of shorter total convalescence. One such study conducted in a military installation included 70 individuals with absence of complications from a herniorrhaphy returned to full strenuous activity within 14 to 23 days.[10] The duties and activities included routine training exercises and wrestling. A similar report is available concerning the civilian population. The average return after appendectomy, herniorrhaphy, and cholecystectomy is about one-half the average time quoted in figures 3, 5, and 6.

Summary and Conclusions

Data from military sources indicate that a considerably shortened mean convalescent period is now current practice following specific common surgical procedures. This reduction in the average length of surgical convalescence apparently is not associated with adverse effects or increased incidence of complications.

No adequate criteria for determination of the optimum postoperative convalescent period have been established. To help study the problem a questionnaire survey was made of surgeons, industrial physicians, and general practitioners throughout the United States. The questionnaire

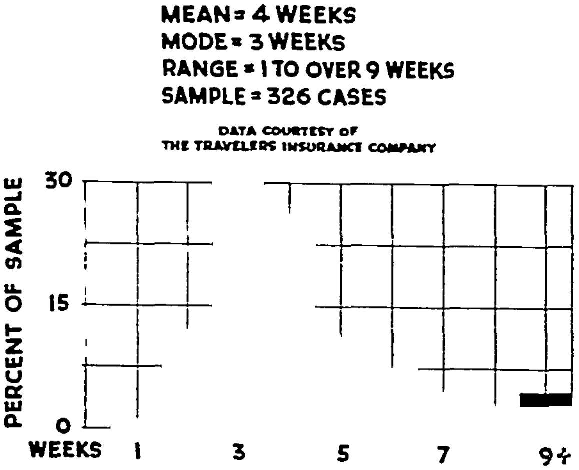


Fig. 8.—"Period of disability" after hemorrhoidectomy in male patient.

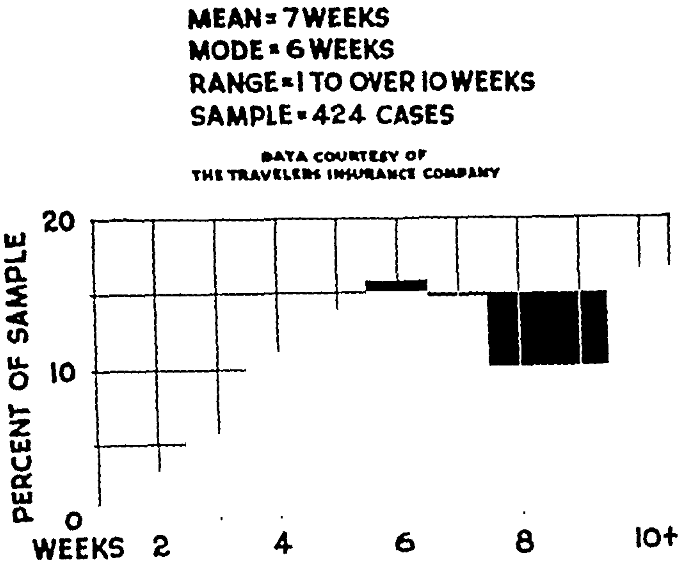


Fig. 9.—"Period of disability" after herniorrhaphy in male patient.

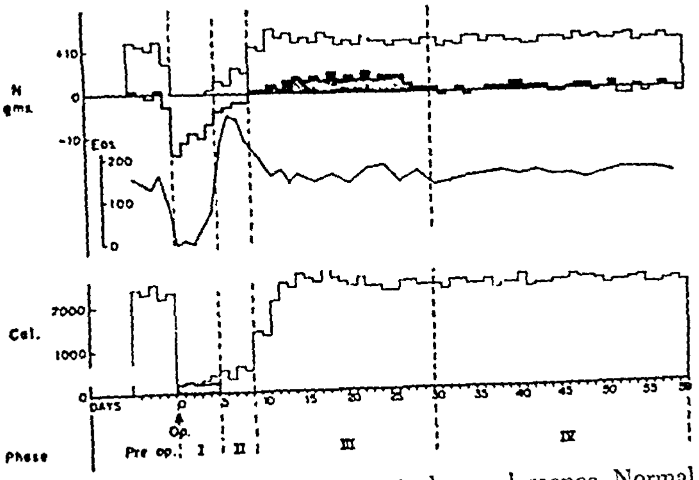


Fig. 10.—Bodily changes in surgical convalescence. Normal response of a normal person to a scale 6-7 trauma (operative). N stands for nitrogen balance in grams. The intake is charted upward from the zero line. The output is charted downward from the top of the intake line. The uppermost line therefore represents the intake, and the distance from there downward to the secondary line represents output by all routes combined. The relation of the secondary line to the zero line represents the balance. If the balance is positive, it is marked as a shaded area above zero; if negative, as a white area, enclosed in a black line, below zero. Eos. stands for peripheral eosinophil white blood cell count and Cal. for caloric intake. The height of the white column represents the caloric content of oral diet. The shaded area represents calories of intravenous infusion. The vertical broken lines indicate the transition periods between the four phases of convalescence described by Dr. F. D. Moore.[5] (Reproduced with permission from Dr. Moore and J. B. Lippincott Company.)

requested their opinion regarding the optimum time for return to work after specific uncomplicated operations on otherwise healthy individuals. Results of the study showed wide variation in opinion among all physician groups for each of the surgical procedures studied. The close correlation of the findings of the survey to insurance statistics reflecting current practice strongly suggests that physician opinion is the major factor for unnecessarily prolonged surgical convalescence.

There is evidence to indicate that the average length of uncomplicated surgical convalescence can be considerably reduced. The extent of this reduction in postoperative convalescence time can be established on the basis of carefully collected studies of large series of surgical procedures and their end-results.

36th and Spruce streets (Dr. Moss).

We are indebted to the Travelers Insurance Company Hartford, Conn., for their cooperation in providing statistical data for this report.

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Surgical Treatment of Peptic Ulcer.—There is a place for gastroenterostomy in certain types of large, penetrating, obstructing duodenal ulcers, particularly in patients with low or average gastric acids or in elderly patients with burned-out sclerotic ulcers and low acids. However, the long-term results of such a procedure, even when vagotomy has been added, have not compared favorably with those of partial gastrectomy. In such cases, that is, gastroenterostomy and vagotomy, the incidence of recurrent ulcer was four times that occurring after partial gastrectomy. Moreover, the functional results which followed the procedure of gastroenterostomy and vagotomy presented many unpleasant postoperative sequelae, which were not present to any such extent following gastric resection, and the incidence of dumping disturbances or of disturbances of the nutritional state was about the same in the two groups, regardless of sex.—W. Walters, M.D., Evaluation of Peptic Ulcer Therapy Based on a Five- to Ten-Year Follow-up Study, A. M. A. *Archives of Surgery*, April, 1957.

ETHNOLOGIC ASPECTS OF THE ABO BLOOD GROUPS DISEASE ASSOCIATIONS

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Statistically significant associations exist between the ABO blood groups and gastric cancer, peptic ulcer, and pernicious anemia. A study of the blood-type frequencies of Negro patients with gastric carcinoma and peptic ulcer showed an apparently higher incidence of gastric cancer in those with blood type A, and of peptic ulcer in those with blood type O. Only continuation and expansion of similar investigations, as well as other research, can adequately test the various hypotheses suggested by these blood group-disease associations.

It has been established that statistically significant ssociations exist between the ABO blood groups and astric cancer, peptic ulcer, and pernicious anemia. ess convincing evidence has been brought forward f associations in diabetes mellitus,[1] rheumatic fever,[2] nd fracture of the hip.[3] The most important question osed by these findings is that of causality. Do the ndings indicate a chance association such as would e found between the falling death rate from tuberulosis and the rising one from automobile accidents, r do they indicate a cause-and-effect relationship?

The strongest evidence against causality has been resented by Clarke and others.[4] Sibships of duodenal lcer patients were studied. Unaffected siblings were ound to have a blood-type-O frequency similar to that oted for their affected brothers and sisters. If there is causal factor responsible for the observed higher ncidence of duodenal ulcer in persons with blood type), a lower frequency of this blood type in unaffected iblings might be expected.

The evidence in favor of causality comes from sevral sources. Data are accumulating from widely seprated geographical areas, confirming the forementiond associations.[5] Differences in ethnologic origins of the opulation groups from which these data have been btained argue against explanations based upon population stratification and other noncausal factors. Evilence for associations between an increasing number f diseases and the blood groups provides additional upport for causality. The finding of a similar association for gastric carcinoma and pernicious anemia, haracterized by an increased incidence in persons vith blood type A for both disorders. in view of the vell-documented relationship of these disorders, suggests a common causal or predisposing factor.[6] The tudies concerned with the secretion of blood group ubstances lend additional support for a causal relaionship.[4]

To find the answer to this question will require not only continuation and expansion of the investigations mentioned above but other researches designed to test the various hypotheses which have been suggested. Most of the data thus far reported have been obtained by retrospective methods. Researches based on prospective instead of retrospective methods are in progress, but, since large numbers of cases are required before the findings become conclusive, considerable time will be needed before they can be expected to yield meaningful results.

A study of the blood-type frequencies of Negro patients with gastric carcinoma and peptic ulcer was undertaken. It was anticipated that such a study would prove helpful in testing the postulate of causality. Findings indicating no association between the ABO blood groups and peptic ulcer and gastric carcinoma in a population group with blood-type frequencies quite different from those of Caucasian population groups would argue against causality. Findings indicating associations would support the postulate of causality.

Materials and Methods

Data were obtained by review of the case records of patients seen at the University of Iowa and Homer Phillips hospitals from 1941 to and including 1956. In order to insure uniformity of the methods employed. all the records were reviewed and the data selected and collected by the authors. Aside from race, diagnosis and blood type were the only two factors determining the selection of cases. Only cases with histological diagnoses were included in the gastric carcinoma group. In more than 75% of the cases, the diagnosis of peptic ulcer was established at the time of surgery. The remaining patients had convincing clinical histories and radiologic evidence of peptic ulcer. These rigid diagnostic criteria, essential to the validity of this study. necessarily meant exclusion of many cases of undoubted but unoperated upon gastric carcinoma and the majority of the patients indicated in the diagnostic files of the record rooms as having peptic ulcer. Two hundred sixty-three cases were selected for study.

Consecutive blood donors at the Homer Phillips Hospital were used as controls. Disease-free relatives and friends of the patients having the same ethnic and

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cultural background would seem to provide a representative sample of the normal population from which the patients came. No professional donors were included.

The blood-type frequencies observed in the patient and control groups were compared. Differences in the blood-type frequencies of the two groups were examined for statistical significance by the chi-square and difference in percentages methods. Of the 11 possible combinations of the data, comparisons involving the four types (O, A, B, AB) and those involving just two types (O, A) proved to be the most informative. Only the results of the analyses of these two comparisons will be reported. The differences observed between the blood-type frequencies in patients with peptic ulcer and gastric carcinoma were examined for statistical significance in the same way. Considerations relating to collection and analysis of the data have been previously described in detail.[7]

Results

In table 1 are recorded the numbers and percentages of the two patient and blood donor groups with each blood type. Observe the higher frequency of blood type A in patients with gastric carcinoma and the lower frequency of types O, B, and AB, as compared with the controls. However, when the O, A and O, A, B, AB comparisons are made and the differences examined for statistical significance, 0.10< p in each instance, indicating no statistical significance. In patients with peptic ulcer, note the higher frequency of blood type O and lower frequency of A, B, and AB. Again, when the O, A and O, A, B, AB differences are examined for statistical significance, 0.10< p. Now compare the blood-type frequencies observed in the two patient groups. For the O, A differences, 0.05< p <0.10, indicating borderline statistical significance; analysis of the O, A, B, AB comparisons gives 0.10< p.

TABLE 1.—*Numbers and Percentages of Negro Patients and Controls (Blood Donors) with Each Blood Type*

	Blood Type	No.	%
Gastric carcinoma 90	O	40	44.4
	A	31	34.5
	B	17	18.9
	AB	2	2.2
Total		90	100.0
Peptic ulcer 173	O	97	56.1
	A	44	25.4
	B	29	16.7
	AB	3	1.8
Total		173	100.0
Controls 6,722	O	3,304	49.1
	A	1,780	26.5
	B	1,352	20.1
	AB	286	4.3
Total		6,722	100.0

In table 2 are recorded the blood-type percentages and differences in percentages from the controls for Negro and Caucasian patients with gastric cancer and peptic ulcer (Caucasian controls [blood donors] 45.9 type O; 41.6%, A; 9.0%, B, and 3.6%, AB). The mo important point to note is the difference in percenta from the controls of the same magnitude of blood ty A in Negro and white patients with gastric carcinor and of blood type O for both groups with peptic ulc

Comment

The most important findings are the increased incidence of gastric carcinoma in persons with blood type A and increased incidence of peptic ulcer in persons with blood type O in the Negro race, increases of the same magnitude as those found for the Caucasian rac It is possible, perhaps reasonable to expect, but c not be categorically stated, that, if sufficient numbe of cases had been available, similar levels of statistic significance would have been observed for the diffe ences observed in Negroes and Caucasians (for Ca casians—gastric carcinoma 0.01<p<0.02, peptic ulc p<0.001). To answer this question, more data mu be obtained (probably more than 1,000 cases of ea type of lesion). Since it is unlikely that one inves gator will have access to such a volume of data, it w be desirable to be able to combine smaller series purpose of analysis. This will be practical only if ea investigator adheres to the simple but vital requi ment concerning unequivocal diagnoses and accur blood type.

TABLE 2.—*Percentage and Difference in Percentage for Each Type in Caucasian and Negro Controls (Blood Donors) and Patients*

	Blood Type	Patients, %	Difference in % from Contr
Gastric carcinoma			
Caucasian	O	42.2	−3.6
	A	45.8	+4.2
	B	9.2	+0.2
	AB	2.8	−0.8
Negro	O	44.4	−4.7
	A	34.5	+8.0
	B	18.9	−1.2
	AB	2.2	−2.1
Peptic ulcer			
Caucasian	O	53.5	+7.7
	A	36.9	−4.7
	B	7.3	−1.7
	AB	2.3	−1.3
Negro	O	56.1	+7.0
	A	25.4	−1.1
	B	16.7	−3.4
	AB	1.8	−2.5

It is of interest to examine the data in another w as suggested by Morton,[8] employing the method scribed by Woolf.[9] For example, the relative incider of gastric carcinoma in Negro patients with blc type A as compared with the incidence in patients other blood types is determined as follows: from ta 1—patients, 31 with A and 59 with O, B, and AB, compared with Negro controls, 1,780 with A and 4,9 with O, B, and AB. Relative incidence: (31 × 4,9 ÷(59 × 1,780)=1.46.

t is convenient to set up the data on gastric car-
ɔma in tabular form thus:

	Patients		Controls		Relative Incidence in	
	A	O+B+AB	A	O+B+AB	Group A	X^2
o	31	59	1,780	4,942	1.458	2.886
asian	416	492	2,625	3,689	1.187	4.909

Chi-square Analysis

	Degrees of Freedom	X^2	p
Association	1	6.688	<0.01
Heterogeneity between races ..	1	1.107	not significant

he data on peptic ulcer can be set up in tabular
n thus:

	Patients		Controls		Relative Incidence in	
	O	A+B+AB	O	A+B+AB	Group O	X^2
)	97	76	3,304	3,418	1.320	3.276
asian	983	856	2,892	3,421	1.358	20.475

Chi-square Analysis

	Degrees of Freedom	X^2	p
Association	1	23.418	<0.001
Heterogeneity between races ..	1	0.333	not significant

ote, as with the previous method of analysis, the
square value indicates no significance for the
gro carcinoma or ulcer data. However, if the Negro
Caucasian data are pooled, which seems justified
e no evidence of heterogeneity between the races
found, both associations appear significant.

t is to be remembered that 90% of American Ne-
es are part white, Indian, etc. However, a similar
ence of pure ethnic character obtains for Cau-
ian population groups who have provided the data
previous studies in this field. Boyd[10] found the
owing blood-type frequencies in New York Ameri-
Negroes: type O, 48.1%; A, 26.4%; B, 22.8%; AB,
%. The agreement with the blood-type frequencies
erved in the St. Louis Negro blood donor group is
close as that found in the Caucasian population in
erent areas of the United States. It is apparent that
e ethnic populations would provide the most signifi-
t data. Unfortunately, although such populations do
st, their primitive way of life, which would make
ifficult to obtain sufficient numbers of accurately
gnosed cases, has seemingly presented an insur-
untable obstacle to interested investigators to date.

The small number of cases in this study (151 duodenal ulcer, 14 gastric ulcer, and 8 duodenal and gastric ulcers) precluded meaningful examination of the possible differences related to the location of the ulcer. In our previous investigations, no significant differences related to the kind of ulcer were found.[7a]

Summary

A study of 263 Negro patients showed an apparently higher incidence of gastric cancer in those with blood type A and of peptic ulcer in those with blood type O. Although these data are statistically equivocal, they provide support for the causal nature of the previously described association of the ABO blood groups to gastric cancer and peptic ulcer.

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Rheumatic Fever.—In the absence of a specific cure for rheumatic fever, there are many therapeutic measures which reduce the severity of the acute attack and improve the patient's chances for recovery and longevity. Prompt eradication of Group A streptococci and continuous prophylaxis against subsequent infection with this organism is perhaps the most important single measure. Also helpful, however, is adequate suppression of the inflammatory process with either salicylates, the adrenal cortical hormones, or both. The least such therapy does is to improve the patient's general condition and reduce the toxic manifestations of the disease that can be harmful and dangerous to the patient with severe carditis. The evidence for a modifying effect of the antirheumatic agents upon ultimate cardiac damage is equivocal but suggestive. The proper control of side-effects of treatment, careful treatment of heart failure with digitalis and diuretics, and the management of the patient's activity are all important supportive measures. Under such management the prognosis for the patient with acute rheumatic fever has been improving steadily.—G. H. Stollerman, M.D., Rheumatic Fever, *A. M. A. Archives of Internal Medicine*, August, 1956.

ORALLY ADMINISTERED PHYTONADIONE IN BISHYDROXY-COUMARIN-INDUCED HYPOPROTHROMBINEMIA

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and
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Oil-soluble phytonadione (vitamin K_1) is the most effective antidote to every known coumarin and indandione derivative. While a dose of 10 mg. given orally is as effective as 100 mg. by vein over an eight-hour observation period, the physician must not be lulled into feeling confident that normal clotting mechanism has been produced. Despite the observed potency of phytonadione, the irregularity of the response to the drug, either orally or intravenously administered, is puzzling. Determinations of prothrombin time must be repeated at frequent intervals, and phytonadione should be readministered if a reversal of prothrombin time is not obtained. When such circumstances do occur, whole blood transfusions are indicated.

At the present time, there are 10 individual drugs capable of inducing hypoprothrombinemia available for use in the treatment of thromboembolic diseases.[1] These compounds are generally classified as either coumarin or indandione derivatives. Though they vary somewhat in speed and duration of effect, their pharmacological effect is identical, in that they all decrease the activity of the circulating prothrombin complex. Oil-soluble phytonadione (vitamin K_1) is the most effective antidote to every known coumarin and indandione derivative.[2] This antidotal quality is in marked contrast to that of the synthetic water-soluble naphthoquinones whose ability to reverse the effect of these compounds was found disappointing and inconstant.[3]

In the United States, phytonadione in emulsified form has been used, until recent years, almost exclusively in parenteral injection as an antagonist to these anticoagulant drugs. It is used, particularly, when a dangerous increase of the prothrombin time exists, threatening or actually inducing bleeding phenomena, or when the anticoagulant effect must be ended quickly. Such a situation might exist if a surgical complication appeared in the midst of anticoagulant therapy. In these situations, phytonadione usually has been administered by the intravenous route. Its innocuousness, despite many hundreds of tests, is manifested by only a single reported serious reaction.[4] This was a severe, but fortunately nonfatal, hemolytic reaction after a single 100-mg. dose of the emulsion.

However, the intravenous route of administration of any medicament is always the least safe of the available routes. Shoshkes and Perelman[5] investigated the feasibility of using the intramuscular route of injection of this emulsion in patients who had received bishydroxycoumarin (Dicumarol). They found that the intramuscular injections had unpredictable effects and that the average change in prothrombin time did not vary greatly from that in the controls. This contrasted with the desired reduction in prothrombin time usually obtained within 8 to 24 hours after the intravenous injection of the same dosage in the same patients.

The effectiveness of the oral route of administration of phytonadione has been under intermittent investigation since Fuller and Barker[6] reported a good recovery of the prothrombin time when they administered 500 mg. of phytonadione by mouth to counter a bishydroxycoumarin-induced hypoprothrombinem Other early workers have used dosages ranging fro 250 to 1,000 mg.[7] with good effect as well. Howeve after further experience with this potent vitamin, t recommended dosage has been reduced to a poi where Wright[8] suggests the use of 10 to 50 mg. o the emulsion administered in food as an effecti antidote to an inadvertent overdosage of any of th coumarin or indandione-type compounds. He h found that excessively increased prothrombin tim will return to safe levels within three to six hours a that a dosage of more than 50 mg. of phytonadione i rarely advisable in that an overdosage might rend the patient resistant to further treatment with th original anticoagulant drug.

There is now available a tablet (Mephyton) co taining 5 mg. of active phytonadione in a stable a easily dispensable form. Theoretically, this shou make oral therapy the method of choice, if only f convenience. Cosgriff[9] evaluated the effect of dos of 2.5 to 20 mg. dispensed via tablets in 75 patie with excessively increased prothrombin times p duced by drugs. He established a prothrombin ti of 35 seconds or less as a limit for safe prothromb penic therapy; he obtained such safe levels in 85% o his patients within 12 hours and in 98%, within hours.

However, it has been our own hospital experience reported in a recent survey of the treatment of 5 cases of acute myocardial infarction,[10] that the hemo

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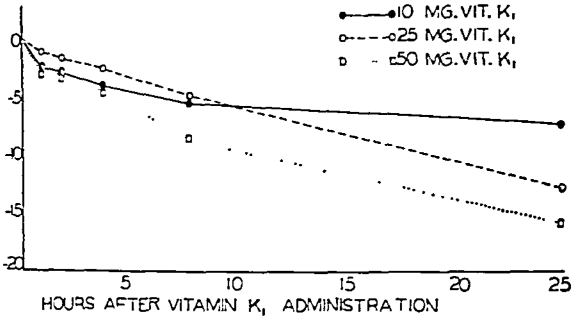
From the departments of medicine and laboratories of the Beth Israel Hospital.

agic complications of bishydroxycoumarin therapy re not necessarily related to the prothrombin time els. In all of the cases of hemorrhage complicating shydroxycoumarin therapy, none of the prothrombin nes in question were under the supposedly safe level 10%. It has been our personal practice in treating ch drug-induced bleeding manifestations, therefore, fix a prothrombin time of 50% or more as the anti-morrhagic index. With these thoughts in mind, an tigation of the effectiveness of the tablets of ytonadione in bishyroxycoumarin-induced hypo-othrombinemia was begun.

Investigation of Effectiveness of Phytonadione

Method.—The study included 30 adults who all had en under anticoagulant therapy with use of bis-droxycoumarin. Twenty-eight had been hospitalized or the treatment of acute myocardial infarction and wo for acute thrombophlebitis of an extremity. Blood rothrombin time determinations were obtained daily nd maintained at levels of 10 to 40%. On the con-luding day of therapy with bishydroxycoumarin, sually after weeks of stabilized prothrombin time evels, the phytonadione tablets were given orally in loses of 10, 25, and 50 mg., respectively, to three groups of 10 patients each. Determinations of their prothrombin times were made just prior to the administration of the phytonadione, then, 1, 2, 4, 8, and 24 hours subsequent to this time. No bishydroxy-coumarin was administered during or after this procedure. Oxalated blood was used throughout, and the prothrombin times were determined by the Link-Shapiro modification of the Quick test, using a stable solution of thromboplastin derived from fresh brain and lung tissue (Solu-Plastin).



Response of bishydroxycoumarin (Dicumarol)-induced hypo-rothrombinemia to orally administered phytonadione (vitamin 1).

Results.—The results of the experiment are shown in the figures. The control prothrombin times in seconds are used as the base-line values, and the mean deviations from these values at the observations made after 1, 2, 4, 8, and 24 hours are plotted as negative deflections from the control point. A statistical analysis of the results is recorded in table 1. In a statistical comparison between the mean values for each hour recorded, no significant difference between the effectiveness of the various doses was discernible. Though there is a trend to a lower fall in the prothrombin time at 24 hours after a dose of 50 mg. of phytonadione has been given, the calculation of the standard error of the mean reveals a possibility of one out of three that this is a chance variation. Further analysis of these subjects showed that only 5 of the 10 patients in the group given doses of 10 mg., 9 out of the 10 given doses of 25 mg., and 5 of the 10 given doses of 50 mg. attained a level of over 50% in prothrombin time in 24 hours.

There was a marked similarity in response in all dosage ranges. The first detectable effect of phytonadione is seen certainly within two hours after its administration, with increasing evidence of its potent antagonism toward the bishydroxycoumarin with each time interval observed. Up to the eight-hour level, there is no difference in either speed or effectiveness of response to any of the dosages of phytonadione used. The 24-hour observation, however, points to a definite trend of a more effective fall of the prothrombin time with the doses higher than 10 mg. Though the statistically significant calculations do not conclusively rule out the possibilities of this being a chance observation, there is a larger return toward normal prothrombin time after the 25-or-50-mg. doses have been given.

Comment

A comparison of the effect of the orally administered doses with the effect of doses of 100 mg. of the emulsified phytonadione administered intravenously[5] shows a surprising similarity in the rate and adequacy of the recovery of the prothrombin time. As small a dose as 10 mg. in tablet form is as effective as the 100-mg. dose by vein over the eight-hour observations and is practically as potent after 24 hours. Yet, despite the obvious potency of phytonadione in reversing bishydroxycoumarin-induced hypoprothrombinemia, the irregularity of the response to either orally or intravenously administered phytonadione is puzzling. There was no uniformity in either of these series studied. Up to 50% of the patients studied after either oral or intravenous dosage failed to reach a prothrombin time of 50% or higher in 24 hours. These patients did not possess obvious impairment of function of the liver or kidneys, nor were they in severe and protracted congestive failure which could possi-

TABLE 1.—*Response of Bishydroxycoumarin (Dicumarol)-induced Hypoprothrombinemia to Orally Administered Phytonadione*

	10 Mg.		25 Mg		50 Mg.	
Time in Hr.	Mean Fall in Sec.	Standard Deviation of Mean	Mean Fall in Sec.	Standard Deviation of Mean	Mean Fall in Sec.	Standard Deviation of Mean
1	2.6	2.4	1.0	1.5	2.5	1.8
2	3.1	2.8	1.6	1.0	3.3	2.0
4	4.2	2.6	2.2	2.5	4.6	2.4
8	5.5	3.9	5.0	3.1	8.5	3.3
24	7.4	4.7	12.9	5.4	16.0	5.1

bly produce a refractory increase in prothrombin times. The answer to this problem must await the knowledge of the mechanism of action of the coumarin drugs upon the prothrombin complex and the function of phytonadione in this reaction. This does emphasize the need for close observation of the patient who has been given phytonadione to counter an anticoagulant drug.

After the physician has administered phytonadione, a false sense of security may lull him into feeling confident that a normal clotting mechanism has been produced when, actually, the prothrombin time may be little changed by a dosage that has usually been effective in his hands. Determinations of prothrombin time must be repeated at frequent intervals and phytonadione should be readministered if a reversal of prothrombin time is not obtained. If this reversal is not forthcoming, whole blood transfusions are indicated. The availability of heparin for reinstituting anticoagulant therapy should alleviate any concern of inducing a state of resistance to the original coumarin or indandione drug.

Gamble and his co-workers,[3a] as well as Toohey,[11] have suggested general courses to follow in treating the effects of the inadvertent overdosage of the coumarin and indandione drugs. The availability of an effective tablet for oral use has simplified this treatment and we present in table 2 a general outline of phytonadione therapy, sufficient to handle the usual situations encountered. The oral dose of 10 mg. is recommended as treatment for excessive induced hypoprothrombinemia without hemorrhagic phenomena. When minor hemorrhagic phenomena occur, such as microscopic hematuria or subcutaneous ecchymosis, a dose of 25 mg. is given by mouth if the patient is in good condition, or by vein if gastrointestinal function or absorption has been impaired by disease. This higher dosage is to insure the reversal of the prothrombin time to at least 50% of normal since the coagulation defect is not necessarily in mathematical relationship to the level of prothrombin. Such doses should be repeated at eight-hour intervals if the reversal of prothrombin time has not been obtained.

TABLE 2.–*Suggested Dosages and Routes of Administration of Phytonadione in Antagonizing Induced Hypoprothrombinemia*

Hemorrhagic Phenomena	Prothrombin Time Levels, %	Phytonadione Dosage		
		Amount, Mg	Route	Frequency, Hr
None	Less than 5	10	Oral	24
Minor	Less than 50	25	Oral or intravenous	8
Major	Less than 50	50	Intravenous	4

With major and life-threatening bleeding episodes, a dose of 50 mg. of emulsified phytonadione by vein is indicated; repetition every four hours, as deemed necessary by repeated determinations of prothrombin time, is recommended. If a reversal of the induced hypoprothrombinemia is not speedily apparent, transfusions should be resorted to. There seems little reason to avoid the intravenous use of this drug in view of the wide experience confirming its safety af such administration. In urgent situations, the sever of the hemorrhage sustained by the patient may eas interfere with the speed and completeness of t absorption of an orally administered dose, and preci time may be wasted in such a mode of therapy. Aft successfully reversing each of the above hemorrhag situations, if the anticoagulant therapy is to be re stituted, heparin can readily tide the patient over unt an adequate increase of the prothrombin time reached again.

Summary

A quantitative comparison between the effectivene of doses of 10, 25, and 50 mg. of phytonadione (vit min K_1) administered orally in tablet form to separa groups of 10 persons each, rendered hypoprothro binemic by bishydroxycoumarin (Dicumarol), sho a similar effectiveness of all dosages in reducing t increased prothrombin times at intervals of 1, 2, and 8 hours after administration. At 24 hours aft administration, the 10-mg. dose was somewhat le effective than the higher dosages. The effectiveness orally administered and intravenously injected pre arations are similar in all respects. Using 50% pr thrombin times as the index of return to a norm coagulation mechanism, only 5 of the 10 patie given doses of 10 mg., 9 of the 10 given doses of mg., and 5 of the 10 given doses of 50 mg. returned normal in 24 hours. This failure emphasizes the ne for repeated observations of the prothrombin time the treatment of inadvertent overdosage of dru induced hypoprothrombinemia. In treating such dru induced hypoprothrombinemia, oral administration phytonadione is the method of choice in all but t most urgent situations.

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AZACYCLONOL (FRENQUEL) HYDROCHLORIDE IN THE TREATMENT OF CHRONIC SCHIZOPHRENIA

A DOUBLE-BLIND, CONTROLLED STUDY

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Therapeutic changes most frequently observed in patients taking azacyclonol hydrochloride were disappearance of hallucinations and lessening or disappearance of delusions, false ideas of reference, assaultiveness, agitation, and seclusiveness. Azacyclonol can be said to have a statistically significant effect in that 61 patients improved after drug therapy as opposed to 28 after use of the placebo. There were no untoward reactions attributable to the use of azacyclonol.

The purpose of this study is to evaluate the effect of azacyclonol (Frenquel) hydrochloride therapy in chronic schizophrenia with respect to delusions, hallucinations, ideas of reference, and behavior. Previous investigators have examined the pharmacological action and significance of this drug.[1] The animal studies have included those of the rabbit, mouse, rat, cat, dog, and fish.[2] Uncontrolled studies have indicated benecial results in patients with schizophrenia and delirium tremens.[3] Other studies have compared the results of azacyclonol therapy alone and in combination with reserpine, chlorpromazine hydrochloride, and electroshock.[4] Prior double-blind studies include one with 40 moderately disturbed psychotic patients,[5] another with 64 psychotic female patients,[6] and a third with 350 psychotic patients.[7]

In this study, 171 psychotic patients with chronic schizophrenic reactions were treated for a period of 12 weeks, divided into three consecutive treatment periods of 4 weeks each. These patients had been mentally ill for from 1 to 33 years with an average of 13 years. They had been hospitalized continuously in a state mental hospital for from 1 to 27 years with an average of 10 years. Their ages ranged from 17 to 59 years with an average of 41 years. Of these, 130 were women and 41 were men. They were all residents of the continued treatment service of the Norwich State Hospital, Norwich, Conn. Previous treatment had included varying combinations of electroshock, insulin coma, chlorpromazine, and reserpine therapy.

Prior to treatment, the patients were selected by the ward psychiatrists who filled out a form for each patient indicating the name, age, sex, duration of illness, duration of continuous hospitalization, type of schizophrenic reaction, type of delusions, presence or absence of ideas of reference, types of hallucinations, and behavior pattern. Two equivalent groups (group I and group II were formed by employing the information on the ward psychiatrists' forms. Group I received azacyclonol (100 mg. once daily, five days weekly) the first four weeks, a placebo (identical to azacyclonol in size, color, and shape) the second four weeks, and azacyclonol the third four weeks. Group II

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received a placebo the first four weeks, azacyclonol the second four weeks, and a placebo the third four weeks.

The pharmacist prepared, for each patient, a bottle that held just enough tablets for four weeks. Physicians and nurses were told that some of their patients would receive azacyclonol and some a placebo, but they were not told that there would be reversals of the groups at four weeks and again at eight weeks. Patients were told only that they were receiving a new medicament. The use of all other medicaments was discontinued the day before this project started; the only extra medicament whose use was allowed throughout the 12-week period was paraldehyde as needed for sedation of very disturbed patients.

Category	1 III	2 IUI	3 IWI	4 IIU	5 IIW	6 IUU	7 IWW	8 IUW	9 IWU
Group I	14	2	17	0	2	1	1	0	1
Group II	4	1	2	0	7	0	5	1	2

Category	10 UUU	11 UIU	12 UWU	13 UUI	14 UUW	15 UII	16 UWW	17 UIW	18 UWI
Group I	18	1	1	2	1	9	1	3	1
Group II	20	2	1	5	1	12	3	7	1

Category	19 WWW	20 WIW	21 WUW	22 WWI	23 WWU	24 WII	25 WUU	26 WIU	27 WUI
Group I	5	0	0	0	0	2	1	0	2
Group II	5	0	0	3	0	3	0	0	1

Results of treatment with azacyclonol and placebo. Group I received azacyclonol first four weeks, placebo second four weeks, and azacylonol third four weeks. Group II received placebo first four weeks, azacyclonol second four weeks, and placebo third four weeks. Further explanation of the categories, by example: Category 3 (IWI) indicates that the patient improved the first four weeks, became worse the second four weeks, and improved the third four weeks. Category 18 (UWI) indicates that the patient's condition was unchanged the first four weeks, became worse the second four weeks, and improved the third four weeks.

Nursing supervisors made weekly written reports on the behavior of the patients as well as unrequested reports on particularly significant changes. Ward psychiatrists made written reports at four-week intervals (on the ward psychiatrists' form described previously); they also made unrequested comments on particularly significant changes. The data were then evaluated and this report was prepared.

Each patient was classified as improved (I), unchanged (U), or worse (W) for each of the four-week periods and placed in one of 27 categories, as shown in the figure. Changes most frequently observed in those patients classified improved were disappearance of hallucinations and lessening or disappearance of delusions, ideas of reference, assaultiveness, agitation, and seclusiveness. Conversely, those changes most frequently observed in those patients classified worse were aggravation of the above criteria. Patients who were classified unchanged actually showed some changes but only of a minor degree. There were no untoward reactions attributable to the use of azacyclonol.

Improvement (see figure) in relation to azacyclonol therapy is indicated in group I by categories 1, 2, 3, 4, 6, 13, and 18 and in group II by categories 11, 15, 17, 20, 24, and 26. Improvement in relation to use of the placebo is indicated in group I by categories 11, 15, 17, 20, 24, and 26 and in group II by categories 1, 2, 3, 4, 6, 13, and 18. Changes with no particular relationship to the use of azacyclonol or placebo are indicated in group I and in group II by categories 5, 7, 8, 9, 22, 23, and 27.

Deterioration in relation to azacyclonol therapy is indicated in group I by categories 14, 19, 21, and 25 and in group II by categories 12 and 16. Deterioration in relation to use of the placebo is indicated in group I by categories 12 and 16 and in group II by categories 14, 19, 21, and 25. Patients who remained essentially unchanged are indicated by category 10.

In tabulating the above information (see table) several interesting facts become apparent. After azacyclonol therapy, 61 patients improved and 11 became worse. After use of the placebo, 28 patients improved and 8 became worse. Changes with no particular relation to use of azacyclonol or placebo occurred in 25 patients and 38 patients remained essentially unchanged.

Of those patients improved after azacyclonol therapy, the average age was 40 years with a range of 15 to 55 years. The average duration of illness was 11 years with a range of 1 to 28. The average duration of continuous hospitalization was 8 years with a range of 1 to 23. Of these 61 patients, 11 were men and 50 were women.

Tabulation of Results of Treatment

Response	Group I	Group II	Total	%
Favorable to azacyclonol therapy	37	24	61	36
Favorable to placebo	15	13	28	16
Unfavorable to azacyclonol therapy	7	4	11	6
Unfavorable to placebo	2	6	8	5
No particular relationship	6	19	25	15
Unchanged	18	20	38	22
Totals	85	86	171	100

Comment

Evidence that the two groups were evenly matched is provided in the table. First, of those improved after the use of the placebo, 15 were in group I and 13 were in group II. Second, of those showing no significant change, 18 were in group I and 20 were in group II.

The fact that 61 patients improved after azacyclonol therapy, as compared to 28 after use of the placebo demonstrates that azacyclonol therapy has a significant effect in schizophrenia. Statistically, this is verified by using a fourfold table and calculating chi square, which becomes 13.85 and gives a p value of 0.0005 (a p value of less than 0.05 is adequate to establish a hypothesis). The fact that 37 patients improved after azacyclonol therapy in group I (eight weeks of therapy) and 24 improved in group II (four weeks of therapy) suggests that improvement is a function of the duration of therapy.

Considering the fact that acute mental disturbances such as delirium tremens and psychoses induced with lysergic acid diethylamide (LSD) respond within hours to azacyclonol therapy, it seems logical to postulate that chronic mental disturbances would require a longer term of therapy and perhaps higher dosages. Further research along these lines as well as biochemical and physiological studies will be required to define the exact role of azacyclonol in our therapeutic armamentarium, but it is my opinion that it has a place.

Summary

A double-blind, controlled study was conducted with 171 chronic schizophrenic patients to determine the effect of azacyclonol (Frenquel) hydrochloride in terms of changes in delusions, ideas of reference, hallucinations, and behavior. Analysis of the data obtained *shows that azacyclonol has a statistically* significant effect (p=0.0003) in causing the disappearance of hallucinations and the lessening or disappearance of delusions, ideas of reference, assaultiveness, agitation, and seclusiveness. The data also suggest that improvement in relation to azacyclonol therapy is a function of the duration of therapy.

The other members of the research team that conducted this study were ward psychiatrists Eloise B. Peterson, M.D., Anna L. Smith, M.D., and Olga Steinicke, M.D.; a pharmacist; and four nurse supervisors.

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CERVICAL RIB AND THROMBOSIS OF THE SUBCLAVIAN ARTERY

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Three patients suffered a subclavian arterial thrombosis as a complication of a mild cervical rib syndrome. All three patients had had only mild symptoms for several years preceding the thrombosis. The thrombosis occurred without premonitory increase in symptoms. Surgical intervention should be advised as a prophylactic as well as therapeutic measure whenever a cervical rib produces even mild symptoms and arterial compression in some position can be demonstrated.

Thrombosis of the subclavian artery as the result of cervical rib compression, in most reported instances, leads to at least some degree of permanent disability in the involved extremity. Schein, Haimovici, and Young[1] could find only 30 reported cases in the literature, and, of these patients, 11 suffered a loss of a phalanx, 2 required a major upper extremity amputation, and 3 suffered a hemiplegia from extension of the thrombosis into the common carotid artery. They further reported that onset of subclavian thrombosis is most frequently abrupt, often following a single, apparently minor trauma to the vessel occasioned by

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strenuous activity. Despite this, conservative treatment of a cervical rib syndrome is generally recommended when symptoms are mild.[2]

Recent experiences with three patients who suffered a subclavian arterial thrombosis complicating a mild cervical rib syndrome suggest that indications for surgical decompression of the subclavian artery in the presence of a cervical rib should be broadened. All three patients had mild symptoms, noted over a period of years, and all appeared to be doing well on the conservative advice of competent specialists.

Report of Cases

Case 1.—On Oct. 21, 1953, a 47-year-old, right-handed toolmaker was admitted to the Graduate Hospital. In 1950, while carrying a cot over his head, he had noticed a tingling pain in his right arm that lasted for only a minute or two and caused the arm to be weak. Eight months later, while polishing the roof of his car, his right arm became so sore and weak that he had to stop. He consulted a physician and then a surgeon and he was told he had an extra rib but that, since his symptoms were relatively mild, conservative treatment was recommended. He was instructed to sleep with pillows beneath his shoulders and not to raise his arms over his head.

For four months prior to admission to the hospital the patient had noticed tingling and weakness of the right forearm. In addition the fingers of the right hand were seen to blanch whenever exposed to cold. There were no symptoms except when the extremity was used, but he was unable to continue on his job.

Examination revealed no arterial pulsations in the right upper extremity. The blood pressure in the left upper extremity was 140/60 mm. Hg. The right forearm and hand were cooler than the left. Bony hard masses were present in the inferior aspect of the supraclavicular triangle bilaterally. Arterial pulsations were palpable superficial to these masses.

On the day after admission the patient was seen by Dr. Samuel Lisker, who confirmed the above findings and further noted the absence of oscillometric readings in the right arm or forearm. Dr. Lisker performed a right stellate ganglion block, which resulted in immediate increase of warmth in the right upper extremity. The diagnosis was made of subclavian artery thrombosis due to compression caused by a cervical rib. Exploration and decompression of the vessel was recommended. If restoration of circulation through the subclavian artery could not be accomplished, Dr. Lisker recommended upper thoracic sympathectomy to aid the collateral circulation. X-ray examination of the chest revealed bilateral complete seventh cervical ribs.

On Oct. 28, 1953, the patient was operated upon, and pulsations in the subclavian artery were seen to stop under the scalene muscle. The muscle was sectioned, the artery was opened, and a firm thrombus was removed. A good flow of blood resulted from both proximal and distal portions of the artery. Upon repair of the artery good pulsations were noted in the subclavian and axillary vessels. Despite this, no pulsations were palpated below this level. An upper thoracic sympathectomy including the stellate, second, and third thoracic ganglions was performed. There appeared to be considerable improvement in the circulation of the extremity after sympathectomy, and after several weeks the patient was able to return to his former occupation. Three years after operation his improvement was maintained, and, although no pulse could be palpated below the axillary artery, the hand had good color and was just a trifle cooler than the left. The strength of the right hand grip was not quite as good as that of the left.

Case 2.—A 68-year-old man was admitted to the Albert Einstein Medical Center on Sept. 4, 1956. He had noted pain and discomfort in his right shoulder for the first time 12 years previously and had consulted an outstanding orthopedist, who discovered bilateral cervical ribs; the patient was told h symptoms were due to this anomaly. It was noted at that t that abduction of the arm would obliterate the radial pul A set of exercises was prescribed and, except for occasional d comfort in his arm, no difficulties were encountered over th course of the next 12 years until May 1, 1956. While touri Europe by car (with the patient as the driver), he noted col ness of the two small fingers of his right hand. A physician wa consulted in Genoa, Italy, and apparently at that time pul and blood pressure were obtainable in the right upper extre ity. About July 1 he noted weakness of the right hand, and h handwriting had deteriorated. Several weeks later another ph sician in Paris noted the pulses were absent in the right upp extremity, and the patient flew back to the United States. I early August, he noted considerable pain in his right hand an starting Aug. 15, a series of stellate blocks were performe From this point on, the pain was relieved and the color a warmth and strength of the right hand improved. This improv ment was maintained until the time of admission to the hospita even though the last stellate injection had been done two wee previously.

On Sept. 8, Dr. Benjamin Greenspan explored the right br chial and subclavian artery. A 6-in. incision was made on t medial aspect of the right upper arm. The brachial arter w found to be thrombosed through its entire extent. An incisi was then made in the supraclavicular triangle, and the scale muscle was sectioned at its insertion. The subclavian arte was found to be entirely thrombosed almost to the origin of t vertebral artery. I then removed the stellate, second, and thi thoracic sympathetic ganglions.

The patient made an uneventful recovery and was discharg from the hospital on Sept. 17, 1956. When last seen, t months after operation, he had maintained his improveme though the hand grip was still weak and the right hand w cooler than the left. Nevertheless, the hand had good color.

Case 3.—A 54-year-old female was admitted to the Albe Einstein Medical Center on Sept. 30, 1956, with a histor having had a sore throat and fever of 103 F (39.4 C) for hours. She also complained of slight indigestion. Examinati revealed a mild pharyngeal inflammation. She was known have had a mild hypertension, and at the time of her admi sion her blood pressure was 160/100 mm. Hg. Her hemoglob level was 15.1 Gm., and the white blood cell count was 4,2 per cubic millimeter, with 56% polymorphonuclear cells, 34 lymphocytes, 9% monocytes, and 1% basophils. On Oct. 1 h temperature was normal, but the next day her temperature we up to 102 F (38.9 C) and remained at that level on the follo ing day. From then on, her temperature was within norm limits. It was believed the patient had a viral infection, a infectious mononucleosis or an oncoming hepatitis was su pected. However, no lymph nodes were palpable nor was th liver.

On Oct. 5, sudden coldness, pain, and numbness in her right arm was noted at 1:30 p. m. It was now recalled that she had bilateral cervical ribs and that, as a matter of fact, on Sept. 25 1947, she had consulted an eminent surgeon because of shoulder and arm symptoms. He noted in his letter that "the swelling in the neck on the right side is due entirely to cervical rib and the soft tissue structures which have been pushed forward by i giving the sensation of a soft tissue mass. The subclavian artery gives a forceful pulsation in this area because it also has been pushed forward by the abnormally placed rib. Her pulse can be obliterated more easily than normal by abduction of the arm." It was his opinion that the arm symptoms were due to the pressure of the cervical rib, but, "because these symptoms were not severe enough, I did not advise her to be operated on, but told her that if the pain became severe enough to warrant operation she should seriously consider excision of the rib." Over the intervening years, she had occasional numbness in her hand and occasional pain but was never in serious difficulty, despite the fact that she was an ardent golfer and played frequently.

At the time of the onset of her difficulties on Oct. 5, 1956, symptoms appeared to start when she was combing her hair. amination at that time by Dr. Meyer Naide revealed that the ht hand was cold up to the wrist and there were no pulses in right arm below the subclavian artery. A prominent cervical was felt on the right side. Oscillations were absent in the ht upper arm and blood pressure was not obtainable in the ht arm. Blood pressure in the left arm was 140/90 mm. Hg. e right hand blanched rapidly in elevation and flushed slowly dependency. It was the impression of Dr. Naide that there s a thrombosis of the distal part of the subclavian or axillary ery resulting from injury to the artery by the cervical rib. recommended immediate stellate ganglion blocks and opera- n in an effort to remove the thrombus and also to excise the vical rib. Shortly thereafter, a right stellate ganglion block s done with improvement in the circulation of the limb and ne warming of the hand. It was agreed the operation should deferred, since she now appeared to be having adequate llateral circulation and she would be in better physical condi- n to withstand operation if the systemic infection could be t further behind her. Therefore, heparin therapy was started ravenously.

On Oct. 6 Dr. Naide noted that the circulation in the hand med to be better and that the color changes in the arm on vation and on dependency showed more rapid filling of the nd with blood. On Oct. 7, the right wrist and hand seemed oler than the previous day and it was decided that she ould be explored. At 6 p. m. the supraclavicular pulse, which s very prominent up until this time, suddenly ceased. At 7 m. the patient was operated upon by Dr. Alex Ulin. A sum- mary of his operative note is as follows: "The scalene muscle as sectioned and the subclavian artery was noted to have pul- tion only in its portion proximal to where it had been crossed the scalene muscle. When the scalene muscle was cut, the bclavian artery popped up. An arteriotomy was done and a esh thrombus was sucked out. The artery was irrigated prox- mally and distally with solution of Heparin and saline. The achial artery was then exposed by a small incision in the pper arm. Since this was thin and pulseless, the axillary artery as exposed by a vertical incision in the axilla. The insertions the pectoralis major and minor muscles were divided to expose e entire axillary artery. Axillary and brachial arteriotomies ere done with removal of clot as well as emboli located at the igin of the subscapularis artery. The back flow of blood was irly good. The vessel was irrigated distally and proximally ith Heparin solution and 2 cc.'s of Priscoline were injected nto the artery distally. Although the blood flow was now good, here was still only a poor pulse in the distal axillary artery. However, both the axillary and brachial wounds now bled reely for the first time. At this point, Dr. Shenkin removed the tellate and second and third thoracic sympathetic ganglia. The xillary artery was then reopened and more clot was removed nd it was irrigated again with Heparin solution. This time a ood proximal and distal blood flow was noted, although the pulse of the brachial artery was still weak. The wounds were hen irrigated with saline, the divided pectoralis muscles were utured and the wounds were all closed."

In the first few hours after operation, the right brachial pulse was barely palpable. No radial pulse could be palpated at any time. The patient was started on intramuscular heparin therapy eight hours after operation. The next morning the right hand was cool, and no radial pulse was palpable. The patient had some pain in her right hand, which felt warmer than it had been before, and there was a brachial pulse thought to be present just above the right elbow. On Oct. 14 the right hand was noted to be cooler than the left, but blood flow seemed adequate and the patient moved fingers and hand well; no pulse in the brachial or subclavian vessels could be felt. On Oct. 20 Dr. Naide stated that the veins in the right hand filled more rapidly than before and the hand was warm down to the fingers. The latter were only slightly cooler than the fingers of the left hand. On Oct. 23, 1956, she was discharged from the hospital with a note that she was much more comfortable than she had been and that strength was returning progressively to her hand. By February, 1957, full power and use had returned to the right upper extremity.

Comment

The three patients reported all had bilateral complete seventh cervical ribs and they were all right-handed, and it was the right extremity that was involved in each instance. Subclavian artery thrombosis in all but one previously reported case was associated with a complete cervical rib and in the majority of instances was right-sided, but complete information as to relationship of thrombosis to handedness is not available.[1]

All three patients were active people; the woman, a housewife, was also a frequent golfer. However, no single trauma could be related to the onset of thrombosis in either of the male patients. The third patient, the female in the series, when in a presumably debilitated state due to an acute infection, noted onset of symptoms of thrombosis when her arms were extended over her head while she was combing her hair.

Cervical rib symptoms were noted 3, 7, and 12 years prior to thrombosis in these three cases. The original, acute symptoms were short-lived, and all subsequent symptoms were mild. In all three patients compression of the subclavian vessel could be produced by hyperabducting or hyperextending the arm at the shoulder at the time of original examination years prior to thrombosis. Nevertheless, they all did well in the intervening years and had only minor, short-lived complaints that were never truly incapacitating as far as their chief interests were concerned. However, since thrombosis can occur so insidiously, one can hardly recommend, in retrospect, that these patients be observed for an increase in symptoms before considering decompression of the subclavian vessel. This is especially true because elective operation to decompress the subclavian artery and/or the brachial plexus is not at all a formidable procedure. It requires the section of the anterior scalene muscle and often the removal of a portion of the cervical rib. The extent of the procedure employed is dictated by the anatomic relationships encountered at the time of operation.

Some believe that the cervical rib should be removed in every case, feeling this would be most certain to relieve compression upon the subclavian artery and brachial plexus.[3] On the other hand, Adson[4] and others[5] pointed out that the scalene muscle is the structure against which the artery and plexus are compressed and that in most instances section of this muscle is all that is required unless the abnormal rib is exerting pressure on the brachial plexus from behind. The advantage of Adson's suggestion is that surgical trauma is minimized. Under any circumstance the brachial plexus must be handled with great care and as little as possible. Failing this, postoperative plexus pain can be troublesome for weeks or even months. Removal of the clavicle, as has been recommended,[6] has never been necessary in my experience, but should it appear to be desirable to do so after scalenotomy and cervical costectomy, it still should not add any real difficulty or danger to the procedure.

We did not feel it was necessary prophylactically to decompress the subclavian artery on the side opposite the thrombosed vessel in these patients, despite the presence of bilateral cervical ribs. They at no time had symptoms referrable to the nonoperated side, and compression of the subclavian artery could not be demonstrated in any position in which the arm was placed or head rotated upon the neck.

Once thrombosis occurred in these three patients, interruption of the sympathetic nerve supply to the extremity appeared to be of benefit. No restoration of blood flow below the subclavian vessel was accomplished in any case, and in each patient clear improvement followed interruption of the sympathetics. In the first patient stellate block with procaine hydrochloride (Novocain) was performed four months after thrombosis had occurred and was transiently but markedly effective in aiding the circulation. Steady improvement with sufficient recovery of power in the hand for the patient to return to his job occurred following sympathectomy. In the second patient, the onset of improvement dated from repeated stellate ganglion blocks first done two months after thrombosis. This seemed to have a permanent effect, since improvement was maintained for the two-week interval between his last stellate block and surgical sympathectomy. Whether further improvement resulted from the surgical sympathectomy could not be clearly determined. It would appear from the third patient's course that her improvement occurred more promptly, in a matter of weeks rather than months as in the first two patients. Perhaps this can be attributed to more prompt elimination of sympathetic tone, since the surgical attack on the thrombosed vessel itself appears to have been no more successful in this individual than in the other two.

The value of attack upon the vascular obstruction itself was certainly not clear in these patients. Despite valiant efforts, short of inserting a vascular graft, palpable pulses were not restored to the large vessels of the involved extremity. Schein, Haimovici, and Young [1] did insert a graft in two patients, but despite this pulsations distal to the subclavian artery were not restored, and from the description of their results there is nothing to choose between the postoperative status of their patients and ours. On this point, I have on two occasions ligated the subclavian artery in the course of performing an upper thoracic sympathectomy through an anterior approach without undue sequelae. (Both patients were young men, aged 21 and 29. The former had a causalgia due to a gunshot wound of the median nerve; the latter had a scalene syndrome without evidence of a cervical rib. In this second patient, the unintended sympathectomy was performed immediately after the vessel had to be ligated to control bleeding.)

Indeed, one may now suggest that the immed sympathectomy in these patients prevented the res ual symptoms noted in patients with spontane occlusion of the subclavian artery due to cervical r pressure reported above and previously in the lite ture. Since occlusion of the subclavian vessel occurs those instances in patients with presumably otherw normal vasculature, one may wonder if restoration the main stream of blood flow is necessary, since su cient collateral circulation should be available if ref vasospasm can be controlled. The operation for sy pathectomy can be completed in a relatively sh time, with little trauma to the patient. Efforts to r move thromboses or insert a graft are frequently ti consuming, require much more extensive surgical e posures, and perhaps in some instances could actual threaten the collateral vessels.

Summary

Three patients had subclavian artery thrombos associated with cervical ribs. Each patient had h mild symptoms for several years preceding throm bosis. Despite the fact the diagnosis of cervical r syndrome with arterial compression in certain pos tions was made, conservative treatment had bee advised. Thrombosis occurred without premonitor increase in symptoms. Surgical intervention should b advised as a prophylactic as well as therapeuti measure whenever a cervical rib produces even mil symptoms and arterial compression in some positio can be demonstrated. Interruption of the sympatheti innervation to the upper extremity after thrombos had occurred was clearly beneficial in this series o patients.

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THE DELINQUENT CHILD AND THE FAMILY DOCTOR

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The young child cannot be expected to recognize pernicious factors in his environment, much less to correct them. Delinquent behavior is the resultant of such factors and requires treatment rather than punishment. The development of humane treatment orientation in our correctional systems is hindered by the hue and cry of the community for punishment. The family physician sees that delinquency is as much a manifestation of personal pathology as epilepsy or syphilis. He can recognize the intrafamilial tensions, especially the unconscious assignment of roles to children by parents, that lead to antisocial behavior. He can advise, correct, and treat. He can convey his orientation to others. As a counselor to the family and at the same time an influential citizen, he can help to develop a community attitude less interested in punishment and more desirous of correcting the causes of delinquency.

The delinquent child is a sick child. As a sick child he requires treatment rather than punishment. This paper attempts to demonstrate that the physician who understands a few basic principles of the family origins of delinquent behavior may serve as a vital agent of prevention and treatment of this form of pathology.

Because the delinquent is offensive to society and to its laws, the legal profession and its offshoots have been assigned the role of dealing with this type of illness. Juvenile police agencies, probation departments, courts, and correctional agencies have all traditionally been managed under a legalistic philosophy. In recent years, however, workers from professions with treatment philosophies have come to deal more and more with delinquent children and adults. This is particularly true of the profession of social work. In ever-increasing numbers, punishment-oriented personnel are being supplanted by social workers who see the delinquent as ill and who are interested in treating him. These professional workers are approaching, with a sense of adventure, the difficulties of actually achieving treatment in this field. For, although a therapeutic attitude toward the delinquent is essential, it is also important for treatment to be firm, authoritative, and controlling if and when it is necessary.

The medical profession, too, is becoming increasingly interested in the problem of delinquency.[1] Psychoanalytic psychiatry, particularly, has evolved some interesting concepts and findings which hold promise for treatment efforts with this type of illness. These findings are suggesting areas in which the family doctor can play an important role in the prevention and treatment of delinquent behavior in childhood.

A prerequisite to assuming an effective treatment role is an understanding of disturbed family relationships and their effect on childhood behavior. For purposes of this discussion, the so-called sociological delinquent will not be considered. The concept of the "normal" delinquent whose behavior is said to reflect socioeconomic tensions exclusive of personal psychopathology is highly controversial. After all, a delinquent act or two does not define a delinquent. Rather, the true delinquent is one who follows a pattern of repetitive antisocial behavior. This pattern is defined for the delinquent child by parental figures through a process which might be called unconscious role assignment.

Some Principles of "Unconscious Role Assignment"

One of the most far-reaching findings of intensive psychoanalytic investigation of delinquency is the concept of the unconscious sanctioning of delinquent behavior in the child by the parent. Johnson and Szurek[2] have emphasized that antisocial behavior in children almost invariably proceeds from this type of unwitting parental permission. These findings have been confirmed by me in my work with delinquent children[3] and by others in the field.[4]

Careful clinical study of the families of delinquent children has unearthed many ways in which parents, struggling with their own emotional problems and against their own antisocial impulses, unwittingly and unconsciously evoke, provoke, and even encourage delinquent behavior in certain of their children. A parent may relive in one of his children certain poorly resolved conflicts from his own childhood.

> A father, telling the psychiatrist about his son Tommy's many misdeeds in the classroom, used stern words. The smile on his face, however, was most eloquent and gave away his real attitude toward the child's behavior. It denoted the vicarious satisfaction which he, the father, a poliomyelitis cripple since the age of 3 years, enjoyed from Tom's social misbehavior. He said, smiling, "That boy of mine can sure stir up a lot of hell."

A parent may select one child as a scapegoat for feelings displaced from another person and may, by unwitting remarks, thereby assign to the child a

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"delinquent role" just as surely as if he had deliberately dressed the child in a striped prison suit from early infancy.

Joe, a 26-year-old heroin addict and petty larcenist, seemed more than a little puzzled when speaking of his mother. She always seemed to stick by him in times of trouble. She had not missed a court trial or a prison visit to him for years. She *did not* seem angry with him, really—but perhaps resigned. Yes, that was it—from early childhood, mother would sigh at his misdeeds, referring to things called "bad blood," "black sheep," and other similar designations. Also, she constantly reminded him that he was "just like his father," a man who himself had been in and out of jail on innumerable occasions, was severely alcoholic, and had not lived in the home since Joe's mother had divorced him when the child was 3 years of age.

These phenomena are not limited to broken homes. The highly influential and powerful captain of industry may unwittingly contribute to the lifelong delinquent resignation of a child who is struggling mightily but ineffectively to follow in his footsteps.

Sixteen-year-old John Jr. was charged with attempted rape of a 6-year-old girl. His father, a wealthy real estate developer and financier, was shocked and bewildered at the news. As John Sr. put it, "I've given the boy everything he has ever needed; we've sent him to the finest boarding schools in the East." John Jr. was an effeminate, mildly depressed, inadequate boy whose father was "too busy" to give him what he really needed, the companionship and opportunity for warm identification which fosters the development of personal identity. John Sr. was inaccessible and unattainable to his son, who turned in his relationship-hunger to his mother. She, also frustrated and lonely, sought relief by immersing herself in social activities and engaging in occasional amorous adventures with door-to-door salesmen.

There are many additional factors in parent-child relationships which may contribute to the child's assumption of the delinquent role. These factors are found when one examines the attitudinal climate in which children are raised. One such factor is seen in the family in which a double standard of truthfulness—for child and for adult—exists. The mother who extols truthfulness at the dinner table but instructs the child to misrepresent his age at a movie or in a public vehicle to avoid paying full tariff is making such a contribution. Also, families in which a given child is the open favorite may provoke attitudes of insecurity and rebellion in one or more of the siblings.

Interestingly enough, families in which angry or rebellious behavior is consistently and strictly interdicted may still produce their delinquents. One sees at least two types of such delinquents. One might be the minister's son or daughter who commits a violent crime, such as murder, in an emotional crisis. This child is often found to have developed no mechanisms for expressing the minor hostilities and rebellions of everyday life in the face of a family passion for "positive thinking." Another type is the child suffering from the "baby thrown out with the bath water" syndrome, in which it is constantly communicated by the parent that the child himself is bad, naughty, and worthless, along with his unacceptable behavior. This becomes a cue for building identity—and a child would rather build a negative identity than none at all.

Unconscious role assignment can be seen as a common factor in all these phenomena of family conflict. By this process, characteristic personality patterns are developed in the individual through the unconsciously communicated assignment of roles by the powerful human figures—the parents—in the child's environment.

Role assignment and role assumption in the family are facilitated by two potent valences in the parent-child relationship. On the child's part, it is an all-pervading need to be loved by the parent and to meet any conditions imposed by the parent which may be necessary to gain that love. On the parent's part, it is a tendency to see significant people, including offspring, in definite roles rather than as individuals in their own right. An attempt is made to unconsciously assign roles, so that the neurotic parent may order, or construct, his human environment so as to either gratify or deny certain particular emotional needs. An example of such needs might be the tendency to relive emotionally charged childhood experiences in one's own children. The parent may unwittingly assign the delinquent role to a child in his attempt to "give my child the freedom I didn't get." Or, the more deeply hidden determination that "the child will suffer just as I had to suffer" may lead to such a role assignment.

The child's need for parental love causes him to constantly seek cues for his behavior, to be "clued in" as to his identity. Thus, he becomes the passive recipient of the role to which he is unconsciously assigned by the parent. Even if the child must assume the role of a "bad child," this may gain him a type of recognition from the parent which may be a poor, but nevertheless valuable, alternative to rejection and its consequent feeling of dread.

Perhaps parental mental health may be measured according to the willingness of the parent to allow the child to develop his own identity. We might then say that the emotionally sound parent reacts to his child as an individual human being with certain constitutional attributes, certain strengths to be supported, and certain human weaknesses which the child should be helped to control. The unconscious tendency of the parent to assign to the child a certain role reflecting the parent's own emotional problems can be seen, then, as a type of molding of the child into an image which suits the parent's neurotic drives but which does violence to the child's full emotional growth, sense of healthy identity, and general self-esteem.

Erikson[5] has evolved an interesting and valuable concept of the life-task of adolescence. He has pictured the normal adolescent period as a time during which a "psychosocial moratorium" is provided for the child in order for him to experiment freely with various possible personal and social roles. Presumably, a healthy choice of role—personal, social, occupational, and sexual—is the outcome of this freedom to experiment and ideally culminates in a role and identity assumption which reflects the child's individuality. An absence or foreclosure of this moratorium might lead to "identity diffusion"—a psychopathological state often manifested by delinquent behavior.

It may be postulated that teen-agers suffering from identity diffusion and delinquent behavior may, in most cases, be experiencing the result of role fixation, resulting from the premature precipitation of a neurotic or delinquent role through the process of unconscious role assignment. In such cases, the absence or foreclosure of the psychosocial moratorium may result from the same neurotic parental drives which originally produced the childhood role assignment. Even in the unlikely event of the creation of a true moratorium for such a child, however, it is doubtful that his fixated delinquent role can dissolve from this process alone. Some type of psychotherapeutic experience would be judged necessary to achieve such a change of role.

The phenomenon of unconscious role assignment may well be involved in the case of every neurotic child. Further basic research and clinical investigation are needed to delineate the nature of the specific emotional conflicts of the parents which lead to the specific unconscious role assumptions in the neurotic child. In the case of the delinquent child, it is postulated that personality difficulties in one or both parents with particular regard to antisocial impulses are combined with hostile-aggressive coloring of intrafamilial relationships—especially the child-parent relationship—to produce a phenomenon which might be considered unconscious assignment of the delinquent role. This, then, is the hidden agenda of parent-child communication.

Role of Family Doctor

The foregoing material would suggest that the general practitioner or pediatrician may serve an important role in prevention and treatment of delinquency as a symptom of the family in emotional trouble. It would almost be superfluous to point out, for instance, that knowledge by the family doctor of the hidden agenda of intrafamilial communication, the particular patterns of unconscious role assignment, and other aspects of the family neurosis will help him to serve in his time-honored advisory function much more efficiently. The old-fashioned family doctor intuitively perceived these phenomena and was guided accordingly in his relationship to the family. The prevalence of these powerful forces is, from a preventive psychiatrist's point of view, one of the most potent arguments for the renewed encouragement of family medicine. With his knowledge of the specifics of unconscious role assignment in a particular family, psychotherapeutic measures may be undertaken by the physician. These have been outlined elsewhere[6] and will not be elaborated in any detail in this paper.

In many cases, specific directive counseling of the parents by the family doctor who is aware of these factors may be sufficient. In selected cases, the family physician who has had training and experience in office psychotherapy may consider undertaking brief psychotherapeutic work with one or both parents with the aim of yielding some insight into how their own emotional problems affect the problem child's behavior pattern. In other cases, serious emotional disturbance in the parents or in the child may necessitate referral to the psychiatrist. In these instances, the family doctor can make an important contribution to treatment if he devotes some time and effort to preparing the family for the psychiatric referral. By providing reassurance and otherwise overcoming resistances that so often occur when a psychiatric referral is contemplated, motivation for psychotherapy by the specialist is increased and his work is thus enhanced.

Aside from general supportive psychotherapeutic measures which may be effectively carried out when the vicissitudes of the family neurosis are understood by the physician, the doctor-patient relationship itself may have an important bearing on the family doctor's management of the delinquent child. The relationship of the family physician to his patient, whether the patient be parent or child, is one of the most powerful existing vehicles for human interaction. The family doctor, in relating to members of the family, may be kind, permissive, and firm, or he may act the role of the tyrannical parent.

Depending on his own role, a type of unconscious role assignment may take place with regard to his patients. This phenomenon may possibly explain the apparent differences in caseload between different doctors. One family doctor may end his day tired but pleased, generally satisfied with his sick but largely cooperative patients. Another family doctor may end his day in a mood of vexed irritability, clucking his tongue over his stubborn, uncooperative, "bad" patients. The latter, in his role of the prohibiting parent, may punitively reject his patients for failure to carry out instructions, and thus may unconsciously assign them an uncooperative role. Other family doctors may practice a double standard of truth—expecting the patient to tell the doctor everything but pursuing their work behind a veil of magic secrecy, even when there are no obvious contraindications to keeping the patient entirely informed.

The family doctor who manages to avoid unconscious role assignment in his relationships with his patients may set a certain example to parents. The physician often functions as a type of parental figure for the adult members of the family, a strong authority figure with power over life and death. Perhaps the manner in which the family doctor acquits his role as authoritative parental figure may have some communication value to families in which unhealthy unconscious role assignments are taking place. The family doctor also acts to advise parents on eating habits, bowel training, and childhood behavior problems. A knowledge of the contribution of family conflict to the developmental and emotional problems of children can be a priceless asset in helping the family.

The Family Doctor and the Punishing Community

A further constructive approach to the delinquent child and his unfortunate heir, the criminal adult, may be through the family doctor's capacity as a citizen—usually a highly respected and influential citizen. Communities tend to perpetuate the unconscious role assignments which antisocial individuals have assumed. One of the greatest deterrents to the development of a humane treatment orientation in our correctional systems has been the hue and cry of the community for punishment. If the family doctor, convinced that delinquency is as much a manifestation of personal pathology as epilepsy or syphilis, can convey his orientation to others, the same type of community progress with regard to delinquency as has occurred with regard to these other two socially stigmatized illnesses may ensue. Thus a more treatment-minded public, less interested in punishment and more desirous of understanding delinquency, may be developed.

Summary

The delinquent child is being increasingly approached with a treatment attitude, as contrasted with punishment. The family doctor is in a position to perceive the intrafamilial tensions which produce, largely through unconscious role assignment, delinquent behavior in children. As trusted advisor and counselor to the family, he may influence these factors through psychotherapeutic maneuvers, through carefully prepared psychiatric referral, and through awareness of the strong effects of the doctor-patient relationship. As an important and influential citizen, the family doctor may contribute to community movement away from punishment and toward understanding and treatment of the delinquent child and adult.

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Air-borne Infections.—Much effort has been expended in attempt to control air-borne transmission. Important fundamental facts have been gained, particularly in respect to particle size. Air-borne spread of numerous mycotic infections has general acceptance. Notably more weight is given that mode in tuberculosis. It has an established place in Q fever and psittacosis. However, initial enthusiasm in respect to common respiratory infections was stretched beyond reasonable limits, with inevitable reaction. The inability to devise practical methods for their control through attack on dust or droplet nuclei, although numbers of agents in the air could often be reduced, has resulted in diminishing enthusiasm about the general problem. Present day opinion supports that of Chapin expressed so many years ago, that spread by contact is the dominant consideration in the common respiratory diseases. If that is correct the observation holds still more for other kinds of infection. But that is opinion, and quantitation is necessary, which marks the need for continuing studies. Too little is known of the variations from disease to disease and of the circumstances of exposure which determine significance in air-borne spread. The combined approach of clinic, laboratory and field study now gives method not available in 1935. There is need to work for better control methods, an obligation to define what is to be controlled, to add to understanding of pathogenesis, and to evaluate air-borne spread under the conditions inevitably to come with a changing world of infectious disease.—J. E. Gordon, M.D., and T. H. Ingalls, M.D., Preventive Medicine and Epidemiology—Contact and Air-borne Transmission of Infectious Agents, *The American Journal of the Medical Sciences*, March, 1957.

THE MISSION OF PREVENTIVE MEDICINE

Brig. Gen. Edward J. Tracy (MC), U. S. A. F.

The specialist in public health must not be content to confine his interests to disease rate factors but must concern himself with the tremendous impact of an industrial environment on our entire population, almost half of which is employed. The techniques of studying environmental hazards have had rather extensive use in industry and have also been used to advantage in public health problems such as atmospheric and water pollution and new food additives. In addition, however, the public health specialist must recognize the need for studying the means of lowering mortality and morbidity from accidents in the home and on the highway. Problems of electromagnetic radiation, noise, and other physical health hazards promise to become increasingly important community problems.

It is of utmost importance that the medical profession recognize its mission in the field of preventive medicine today and in the future. We are in the midst of an unprecedented age of technical progress; we are surrounded by the end-products, intermediates, and by-products of our own industry. Furthermore, we are placing more and more of our population in an industrial environment, both at work and at home. The literature is full of references to the impact that these technical developments are having on the field of medicine—especially preventive medicine and its subspecialties.

The challenge has been presented to us to exercise sound medical judgment in helping to shape the future. Our creed must continue to be one of maximum service to mankind and our community. It is vital that we effectively utilize the relatively small number of medical personnel adequately trained in the field of preventive medicine. Such men must, for a time, act in the role of medical missionaries—educating medical students, fellow physicians, and others in the concepts of preventive medicine in our time.

Subspecialty-Barriers

The concentration of attention on the differences between subspecialties may cause us, if we are not wary, to lose sight of the over-all mission of preventive medicine. It is only natural for a man to take pride in his area of special knowledge, but he should not let such pride make him blind to the need for broad knowledge in the over-all field.

I would like to emphasize the need for crossing the subspecialty barriers whenever it appears that the over-all mission may be better served by so doing. For example, in the Air Force, it is obviously not practical to provide specialists in each preventive medicine subspecialty at every Air Force installation. There just would not be enough specialists to go around. Thus, the specialist in aviation medicine must be capable of supervising public health measures such as immunizations and epidemiologic investigations. He should also be capable of solving problems in occupational medicine (occurring in ground support crews as well as air crews) by use of industrial hygiene surveys, the environmental health laboratory, and other means of evaluating and controlling toxicity. After all, even the best pilot cannot get off the ground if the plane does not receive proper maintenance.

Examples of Cross Utilization

Commercial air transportation is being used more and more for industrial employees. Private aircraft are utilized in some companies, and there is an increasing need for the use of medical standards of aviation by the industrial physician. During the past three years, at Headquarters Air Matériel Command, we have conducted symposiums on aviation medicine for physicians in the Air Force residency training program. I am pleased to note that more and more interest and participation in these meetings is evident among our civilian colleagues in the field of occupational medicine as well as in the field of aviation medicine.

The increasing use of insecticides in aircraft as a means of controlling spread of insect vectors (or on the ground to control termites) has involved specialists in public health in problems of aviation medicine on the one hand and toxicology (from contamination of water supplies for human or animal consumption) on the other. The U. S. Public Health Service is providing occupational medicine coverage in a number of instances—e. g., cholinesterase determinations in workers in the fruit orchards in the state of Washington and studies on workers exposed to radioactivity in the process of mining uranium.

Certainly every industrial physician must be intimately concerned with the tremendous costs of noneffectiveness in the work force resulting from

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Chairman's address, read before the Section on Preventive Medicine at the 106th Annual Meeting of the American Medical Association, New York, June 5, 1957.

nonoccupational communicable diseases and in the detection of health trends by statistical methods—basically epidemiologic considerations.

In general, we might state that the specialist in aviation medicine would benefit from greater familiarity with and utilization of certain personnel, techniques, and laboratories which the industrial physician uses to support day-to-day activities. It would help the flight surgeon maintain better control of health hazards affecting crew personnel who fly the aircraft as well as ground support personnel who get the plane ready to fly.

The specialist in public health must not be content to confine his interests to disease rate factors but must concern himself with the tremendous impact of an industrial environment on our entire population, almost half of which is employed. The techniques of studying environmental hazards have had rather extensive use in industry and have also been used to advantage in public health problems such as atmospheric and water pollution and new food additives. In addition, however, the public health specialist must recognize the need for studying the means of lowering mortality and morbidity from accidents in the home and on the highway. Problems of electromagnetic radiation, noise, and other physical health hazards promise to become increasingly important community problems. Much of the significant work in all of these fields has arisen out of specific occupational or aviation medical problems which have been studied in private industry and in the armed forces.

Maximum Utilization Necessary

I have attempted to view afresh the challenge which has been presented to the medical profession and related sciences by the nature of our technical industrial progress. It is incumbent upon us, as individuals and as a group, to accept this problem and to take steps towards its satisfactory resolution. Such steps must emphasize the maximum utilization of our existing personnel, techniques, and facilities rather than the creation of barriers within the preventive medicine specialty.

I believe that the action taken at the last annual meeting to change the name of the section from the Section on Preventive and Industrial Medicine and Public Health to simply the Section on Preventive Medicine indicates a very healthy trend. In addition, the rotation of the chair between the subspecialties can be used to broaden the concept of cross training in preventive medicine. I sincerely hope, for the sake of our country as well as our profession, that we in the preventive medicine specialty will accept the challenge thrust upon us. If we will recognize the problem in the fullness of its scope, I feel that we will have made a very important step toward its solution.

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CLINICAL NOTES

VENOUS THROMBOSIS SIMULATING ARTERIAL EMBOLIZATION WITH MAJOR GANGRENE

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That venous thrombosis may mimic acute arterial thrombosis or embolism and produce major gangrene of an extremity has been suggested by Edwards[1] and by Scupham.[2] The latter quotes Pringle[3] whose two cases, at pathological examination, showed post-traumatic venous thrombosis and patent arterial systems. Since the arterial spasm which produced the ischemia and gangrene may have been post-traumatic and not solely secondary to the venous thrombosis, specific illustration of the speculation of Edwards and Scupham was lacking. The following case illustrates the clinical and pathological occurrence of isolated venous thrombosis producing arterial spasm and major gangrene of an extremity without the slightest clinical suggestion of disease of the vein.

Report of a Case

A 60-year-old woman, in comma, was admitted to the hospital on Oct. 28, 1949. The patient had been in apparent good health until Oct. 21, when diabetes mellitus and atrial fibrillation were discovered by her family physician. She was placed on a restricted diet and on therapy with digitoxin. Several hours prior to admission, she could not be awakened from an afternoon nap. Physical examination at the hospital revealed semi-coma, complete aphasia, and but slight voluntary motion of the eyes, left arm, and left leg. The blood pressure was 140/70 mm. Hg. The heartbeat was totally irregular, with an apical rate of 68 beats per minute. Both dorsalis pedis arteries were palpable. The remainder of the physical examinations, except for neurological findings, was normal. The blood sugar level was 150 mg. per 100 cc. The electrocardiogram revealed atrial fibrillation and digitalis effect. The diagnoses were arteriosclerotic heart disease with atrial fibrillation, diabetes mellitus, embolization of the left middle cerebral artery, sensory and motor aphasia, and hemiplegia on the right.

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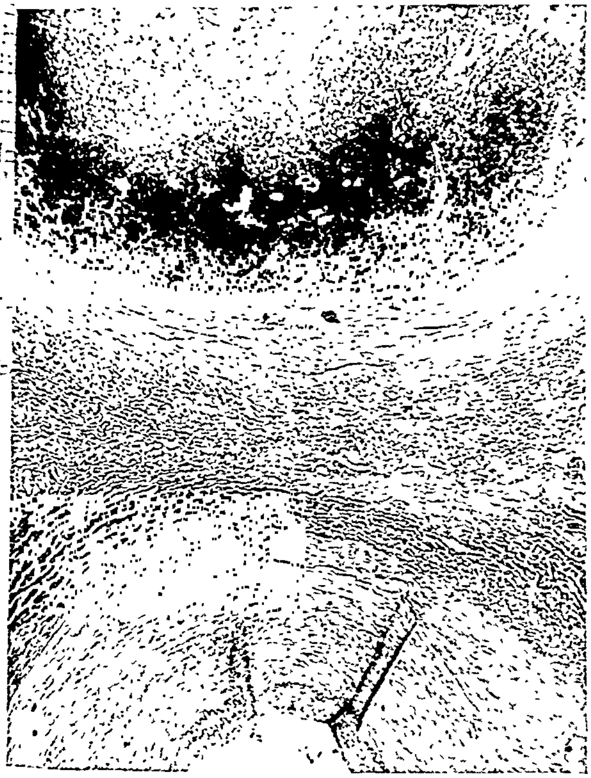
the ensuing 14 days the patient showed no signs of recov- On the morning of the 15th hospital day, the nurse, while orming the usual morning care, noticed that the right leg the knee down was cold. There was pallor, mottled with sh areas. Examination confirmed these findings. The limb cadaverous and cold. On elevation there was extreme pal- Only the femoral pulse was detectable on the right side. re was no petechiasis, edema, or venous congestion. The lower extremity was normal in all respects. Papaverine rochloride (65 mg.) was injected into the right femoral ry. This injection was followed by a right lumbar sympa- ic block with procaine hydrochloride (Novocain). There no change distal to the knee.

ecause of the patient's very poor general condition and ause of the irreversible changes in the right foot and leg, loration for possible embolectomy was not attempted. Dur- the course of the next 10 days, extensive dry gangrene of right foot and leg developed. At this time, a midthigh mputation was performed. The surgeon noted normal pulsa- ions of the femoral artery and moderate bleeding in spite of the use of the tourniquet. The patient died 10 days later. Autopsy was not performed.



Section showing femoral vein occluded by organizing throm- us and contiguous patent femoral artery at level of midthigh mputation.

Pathological examination of the amputated leg showed that the femoral vein had been sectioned at operation through a olid (see figure) thrombus. This thrombus extended to the unction of the femoral and popliteal veins. The popliteal vein was normal. The venae comitantes of the named arteries were dissected and found patent and normal. There was extensive gangrene of the foot and of the lateral and medial aspects of the leg below the knee. The entire arterial system was explored and found to be normal. Dissection was carried out from the point of amputation down to and including the dorsalis pedis and posterior tibial arteries.

Comment

Gangrene of part of an extremity from clinically evident massive thrombophlebitis is a rare, though well-known, occurrence.[4] This catastrophe may occur whether the peripheral arteries are pulsating or in spasm. In the former instance, the heart is merely pumping more blood into a circulatory tree from which there is no exit,[5] as all of the veins are occluded by the phlebitis. Venous thrombosis frequently gives rise to some degree of arterial spasm.[6] Whether this spasm is due to reflex through the sympathetic pathways,[7] perivenous inflammation affecting contiguous arteries,[8] vasoconstrictor substances released by the lysis of platelets,[9] to the local effect of serotonin,[10] or to a combination of these factors plus others as yet unknown is a matter for speculation. Lumbar sympathetic block and intra-arterial injection of tolazoline (Priscoline) hydrochloride or papaverine are usually effective in the release of arterial spasm,[8] but they were of no avail in the present case.

Kinmonth[11] found segmental traumatic arterial spasm completely resistant to sympathectomy, periarterial stripping, and intra-arterial medication. He discovered that exploration, followed by periarterial bathing with warm solutions of papaverine sulfate, was the only successful treatment. Perhaps arterial spasm secondary to venous thrombosis will respond to the same modality. Of course the cerebral vascular accident in this case prevented early discovery of the ischemia at which time the measures employed might have been of some help.

Gangrene of the leg was due to arterial spasm in the presence of unsuspected thrombosis of the femoral vein. Measures directed at relieving the arterial spasm were not effective.

55 E. 72nd St. (21).

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TREATMENT OF ORAL HISTOPLASMOSIS BY LOCAL INJECTION WITH NYSTATI

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and

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As yet, no specific therapy for histoplasmosis has been developed clinically. The effective inhibitory nature of nystatin on Histoplasma capsulatum has been demonstrated both in vitro and in animals experimentally infected.[1] On this premise, we injected nystatin solution directly into oral lesions of histoplasmosis and observed the gradual but complete disappearance of the localized disease process.

Report of a Case

A 78-year-old man was admitted to the Cincinnati General Hospital on Sept. 13, 1955, with the history of firm "blisters" that had been appearing in his mouth since mid-July, 1955. There were no other subjective complaints. On physical examination, this elderly man appeared thin but not ill. Examination of the oral cavity revealed multiple, firm, nontender, mucosa-covered nodules, which varied in size from 5 to 10 mm. in their greatest diameter. The lesions were distributed as follows: two nodules on the upper and one on the lower labial mucosa, one on the left buccal mucosa approximately 2 cm. lateral to the lip commissure (fig. 1*A*), and two on the middle of the left lateral border of the tongue (fig. 1*B*). The surfaces were smooth except for the buccal lesion, which had a superficial erosion but no bleeding points. Nasal, pharyngeal, and indirect laryngeal examination failed to reveal any abnormalities. The remainder of the physical examination was essentially negative.

The nodule from the lower labial surface was totally excised and submitted for histological studies. The pathologist's report stated: "There is a chronic inflammatory infiltrate in the submucosal region of the specimen with considerable histiocyte proliferation and giant cell formation. The histiocytes show histoplasmal organisms. The Hotchkiss-McManus stain for fungus confirmed the presence of the latter."

The histoplasmin (1:1,000) skin test was read as 2+ in 72 hours. The tuberculin test (first-strength purified protein derivative [PPD]) was 2+ in 48 hours. The blastomycin (1:1,000) and coccidioidin (1:1,000) skin tests were both negative. complement-fixation test for histoplasmosis was negative. Ro genograms of the chest and spleen showed no signs of dis The bone marrow studies revealed no evidence of orga on either smear or culture. The stool guaiac test was neg The hemogram and urine examinations were not remark Liver-function studies were within normal values.

Both lesions of the upper lip were completely excised, an tissue press was prepared and stained by the Giemsa meth The smear showed typical histoplasmal organisms both wit and outside of swollen macrophages (fig. 2). This tissue also submitted for mycological culture. The latter grew out H capsulatum organisms at room temperature in 10 days.

On Oct. 18, 1955, freshly prepared nystatin for intraven administration diluted in 5% glucose in water, representi 2,000 units per milliliter, was injected below and into the b cal lesion until a ballooning effect was noted. Three days la (Oct. 21), some regression in the size of the lesion was evid On Oct. 22, freshly prepared nystatin solution was again i jected in a similar fashion into both the buccal lesion and t nodules on the lateral edge of the tongue. Marked pain wa associated with the infiltration of the nystatin into the tong lesions. All treated lesions slowly regressed. No control type o injection was used. Nystatin was again injected into the thre nodules on Nov. 2, 1955. The patient was discharged from t hospital on Nov. 3. He was next seen in the dermatology o patient dispensary on Nov. 29, 1955. At that time, the lesi in all three treated areas were progressively smaller. The pa tient was seen on Dec. 14, 1955, and there were no signs o any disease process in the oral cavity. The patient was followe up at periodic monthly intervals after that, with no signs o recurrence (fig. 1*C* and *D*). He continually refused to all biopsy of the treated buccal area. The patient's case was pr sented before the Cincinnati Dermatological Society as a follo up study on May 2, 1956. There were no signs or symptom o oral histoplasmosis at this time; however, the patient relat that for the past month he had been losing weight and ha become weaker.

On May 14, 1956, he was readmitted to the Cincinnati Ge eral Hospital. Roentgenograms of the chest revealed a mottle infiltrate in the left upper lobe. Skin tests with histoplasmi (1:1,000) and first-strength PPD were both positive in 4 hours. Sputum studies were consistently positive for acid-fa

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nisms. The patient was transferred to Dunham Tuberculosis oital on May 31. On June 14, 1956, the patient fell off a cher, went into a state of irreversible shock, and died. r. Black-Shaffer, of the department of pathology, summar- the postmortem examination as follows: "The gross autopsy ngs were those of pulmonary edema and miliary tuber- sis. Examination of the histologic preparations revealed a espread but not very progressive miliary tuberculosis in the gs. These took the form of isolated and small confluent tu- les, some with central caseation necrosis. The liver and en showed widespread epithelioid tubercle granulomas. In sections of the heart, there was a tubercle present in the atrium. Careful search for Histoplasma capsulatum was tless. Gridley stains, likewise, failed to reveal any recogniza- histoplasma bodies. The final diagnosis was only miliary erculosis."

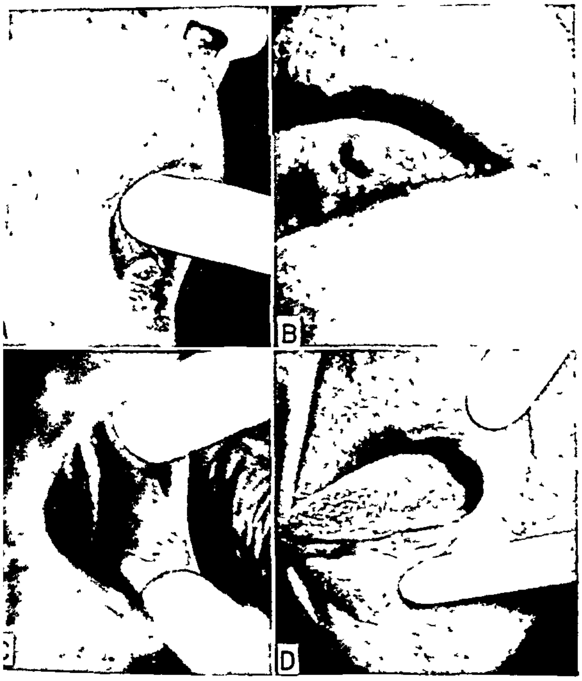

Fig. 1.—*A*, nodule on left buccal mucosa with central erosion ior to treatment. *B*, nodules on left lateral margin of tongue ior to treatment. *C*, buccal mucosa five months post-treat- ent. *D*, left margin of tongue five months post-treatment.

Comment

Histoplasmosis, once an obscure fungous disease, being recognized with increasing frequency, espe- ially in the endemic areas comprising southern Illinois, ndiana, Iowa, Kansas, Kentucky, Missouri, Ohio, and ennessee. H. capsulatum has been repeatedly re- overed from soil. Primarily for this reason, the dis- ase seems to be most frequently acquired by inhala- on of spore-containing dust. It is not certain as to ow the organism actually enters the body and local- es in the skin or mucous membranes. Curtis and rekin[2] state that, for the purposes of classification, istoplasmosis may be divided into two categories, ccording to whether the portal of entry is (1) pri- ary in the skin and adjacent mucous membranes or 2) systemic, via the respiratory or gastrointestinal ystem, with the cutaneous or mucosal lesions that do occur due to secondary invasion. Silverman and coworkers[3] believe that the initial infection is in the lower respiratory tract and that dissemination can then take place to the skin and mucous membranes or to other organ systems. Silverman's group feels that, if the skin or mucous membranes were the primary site, regional lymph node involvement would be more often encountered.

Nodular, noduloulcerative, and vegetative lesions on the tongue, lips, buccal mucosa, hard and soft palate, larynx, or vocal cords are suggestive of histoplasmosis.[4] The tongue and larynx are most often involved by a granulomatous process, which frequently ulcerates.[5] The majority of such oral lesions occur in people over 40 years of age.[6]

One must consider carcinoma, syphilis, leishmaniasis, Vincent's infection, leukemia, and Hodgkin's disease as well as other granulomatous ulcerative diseases in the differential diagnosis of oral histoplasmosis.

Summary

A patient with proved oral histoplasmosis was treated by the local intralesional injection of nystatin. This was associated with complete disappearance of the treated areas. The patient later died, and the autopsy revealed miliary tuberculosis but no evidence of histoplasmosis.

1737 David Whitney Bldg., Detroit 26 (Dr. Plotnick).

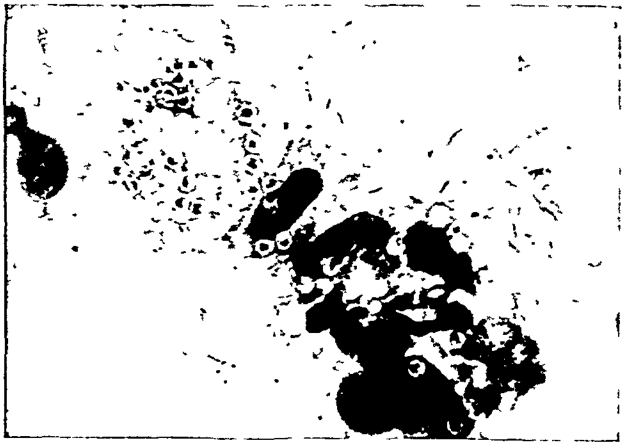

Fig. 2.—Tissue press demonstrating Histoplasma capsulatum organisms within swollen macrophages. (Giemsa stain. ×700.)

The nystatin used in this study was supplied by E. R. Squibb and Sons, New York.

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* * *

AMMONIA CONTENT OF STORED BLOOD

Julius R. Greenberg, M.D., Leonard D. Rosenman, M.D.
and
Alvin E. Lewis, M.D., San Francisco

Numerous recent publications have attested the significance of elevations in the levels of ammonia in the circulating blood of patients with certain liver diseases.[1] Stuporous phenomena have been observed when the ammonia-nitrogen level of blood has exceeded 200 mcg. per 100 ml. The blood of a healthy person contains minute amounts of ammonia, which increase when blood stands in an open container exposed to room air.[2] In our laboratory, as in others, the ammonia level in the blood of a healthy person has been found not to exceed 50 mcg. per 100 ml.

Stupor, or coma, occurs not infrequently during or following episodes of esophageal or gastrointestinal hemorrhage in patients with liver disease when there is interference with the passage of portal venous blood through the liver. It generally is agreed that a prime source of the increased ammonia content of the blood is the extravasated blood acted upon by the intestinal secretions and bacteria. Since treatment of the hemorrhagic complications usually includes replacement transfusions, it has been suspected that stored blood, the usual source for transfusion, may contain toxic quantities of ammonia. Cincotti[3] observed a rise in the ammonia-nitrogen content of banked blood from a normal level of 9 mcg. per 100 ml. to 900 mcg. per 100 ml. during three weeks of storage.

A study of the formation of ammonia in decomposing blood in the San Francisco blood bank has been carried out in our laboratory. Sixteen pints of blood, collected and stored in the usual fashion, were sampled at intervals, 2 to 68 days after collection. The data are presented in the table and the figure.

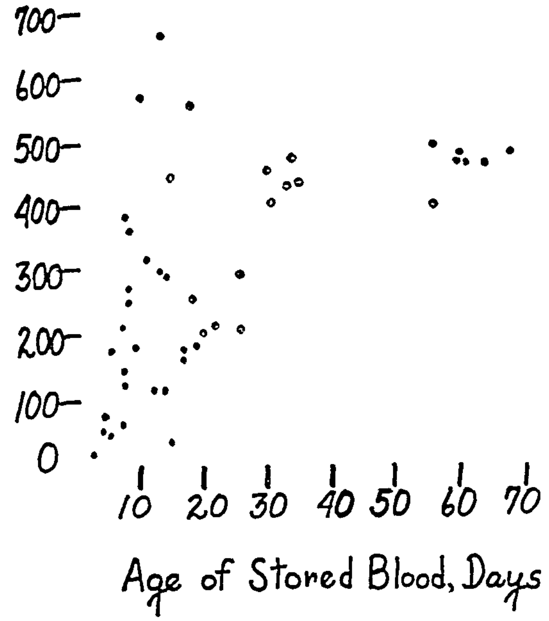
The ammonia determinations in this study were all made in duplicate with the Conway microdiffusion method[2] being used. Using a 10-minute absorption interval, we have confirmed Conway's finding that a consistent proportion of the total is absorbed. Th in routine determinations the 10-minute interval w used with appropriate correction factors. A final c rection for temperature effect was made by subtracti (0.0054t–0.38) micrograms, with t being the centigra temperature. All determinations were controlled

Ammonia-Nitrogen Content of Stored Blood Sampled at Inte of Two to Sixty-eight Days After Collection

Blood Unit No.	Days After Collection, No.	Ammonia-Nit Content, Mc Ml. (Correc
2811	2	20
2504	4	51
M3645	5	49
MB2130	5	178
11282	7	141
M3609	7	61
MB2130	7	212
MB1941	7	124
MB1941	8	272
MB2130	8	371
10932	9	181
15021	9	353
15021	10	570
MB1941	11	320
2811	12	112
15021	13	665
M6672	14	291
2594	14	119
M6672	15	447
M3645	15	137
M3609	17	163
2811	17	175
M6672	18	558
2591	19	187
3645	20	201
M3609	22	215
0245	26	210
31026	30	483
30887	31	408
31026	34	476
30887	35	438
30718	56	403
30726	56	498
30718	60	470
30726	60	480
MB0111	64	465
MB0111	68	482

From the departments of internal medicine, surgery, and pathology, Mount Zion Hospital.

ultaneous measurements on blanks and standard ntities of ammonium sulfate. The duplicate blood serum determinations always checked within less n 2%.



Ammonia-nitrogen (NH_3N) content of stored blood sampled various intervals.

The data demonstrate that the ammonia-nitrogen content increases with aging of the stored blood. At 21 days, the maximum age of blood permitted for use for transfusion, the ammonia-nitrogen content of most samples of whole blood was under 250 mcg. per 100 ml. (see table and figure). That amount is much less than that found by Cincotti.[3] The discrepancy may be explained by differences in methods of collection and storage or by variations in the techniques of measuring the ammonia. In view of both our data and Cincotti's, the amounts of ammonia nitrogen that would be administered with 1,000 ml. of 21-day-old blood would exceed that of fresh blood by 2 to 8 mg., the equivalent of 6.6 to 30.4 mg. of ammonium chloride. Whether or not those extremely small quantities have clinical significance is debatable.

The blood used in this study was supplied by the Irwin Memorial Blood Bank.

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* * *

ATRIAL FIBRILLATION DUE TO ACCIDENTAL ELECTRIC SHOCK

William H. Wehrmacher, M.D., Chicago

Of the several causes of atrial fibrillation in man, lectric shock has received only scant attention. A few revious case reports demonstrate that the arrhythmia nay result from accidental shock[1] or as a complicaion of electric convulsive-shock therapy.[2] Patients so fflicted are naturally concerned about what the nticipated course of the illness may be. Physicians equire knowledge of how it develops and how it can e treated. Those concerned with the adjudication of laims arising from such injuries need information about the prognosis. The following case demonstrates how electric shock may produce atrial fibrillation and that excellent functional recovery can follow such an accident.

Report of a Case

The patient, a 52-year-old lineman, on Sept. 2, 1954, was working astride a pole which supported high-tension electric wires. As he worked, he inadvertently assumed a position whereby his left posterior thorax, wet with sweat and covered by only a cotton workshirt, touched a noninsulated 2,200-volt line above, while his right forearm simultaneously contacted a 110-volt line below, which was guarded by a weathered insulation. The contact was transient, caused him to jerk away, and produced a buzzing sound heard by a nearby workman. The patient continued to work and finished the job he was doing.

When seen by the medical department of his employer's firm on the day after the accident, burns of about 1 mm. depth on the right arm and left posterior thorax were evident. An electrocardiogram (fig. 1) confirmed the examining physician's impression that the patient's atria were fibrillating and that ventricular contractions were absolutely irregular. A second electrocardiogram taken the same day showed persistence of the atrial fibrillation. The next electrocardiogram, taken Sept. 7, and all subsequent electrocardiograms showed that the abnormal rhythm spontaneously had reverted to normal.

There was no suggestion that any disturbance of cardiac rhythm had ever occurred previously, either as observed by the patient himself, his private physician, or the employer's medical department.

Examination on Sept. 10 was made to evaluate his cardiac status. His pulse was regular, normal in volume and contour, and beat 72 times per minute. Systolic blood pressure varied

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From the Department of Medicine, Northwestern University Medical School.

between 140 and 146 mm. Hg and diastolic between 88 and 96 mm. Hg. The retinal arteries showed very slight changes, corresponding to a bare grade 1 (Keith and Wagoner) arteriolosclerosis. The walls of the medium-sized peripheral vessels were very slightly firmer than average. The lungs were normally resonant and the breath sounds normally vesicular bilaterally except for inconstant sticky rales at the lung bases. The heart tones were of good quality. No murmurs were audible. There was a superficial burn on the right forearm and a multiple-base skin burn of about 1 mm. depth over the upper portion of the left scapula.

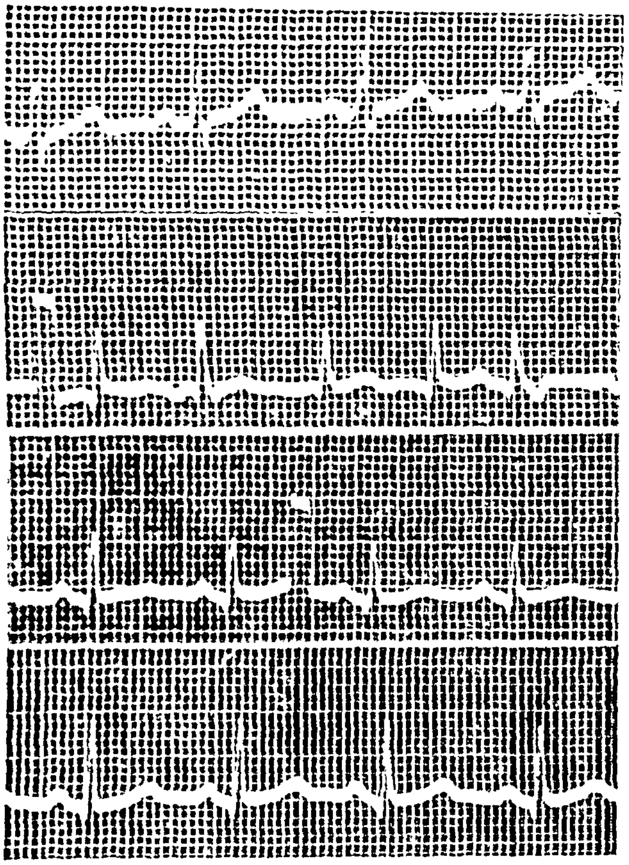

Fig. 1.—Standard lead 2 of electrocardiograms in case reported. The top graph, taken Dec. 20, 1946, shows a normal sinus rhythm. The second graph, taken Sept. 3, 1954, the day after the electric shock, shows atrial fibrillation with absolute irregularity of ventricular rhythm. The last complex from this graph represents a premature beat of ventricular origin, whereas all others are conducted beats from irregular atria. The last two graphs, taken Sept. 7, 1954, and Nov. 5, 1954, respectively, show return and persistence of a normal sinus rhythm.

The chest was examined by fluoroscopy. The heart was at the upper limit of normal size. The configuration of the heart, which lay rather transversely in the sthenic chest, suggested some prominence of the left ventricle.

All electrocardiograms (fig. 1 and 2) known to have been recorded from this patient were made available for study. The first electrocardiogram, a routine part of his employer's medical program, was made in 1946 when the patient was 44 years old. It showed a normal sinus rhythm and normal conduction. In lead 3, the QRS was a W-shaped complex and the T wave was inverted. Because of the possibility that this abnormality might have resulted from a posterior myocardial infarction, a careful inquiry for suggestive symptoms was made, but the patient disclaimed any. Electrocardiograms taken Sept. 3 (the day after the electric shock) showed atrial fibrillation and occasional premature beats, arising from at least two different ventricular foci. At this time, the T wave was flat in lead 2 and inverted in 3 and aVF. In leads 3 and aVF, there were initial Q waves, and in leads 2 and V6, there were tiny Q waves. Leads aVF and V6 were not taken in 1946, so no comparison could be made.

On Sept. 7, the regular sinus rhythm had been restored there was less flattening of the T wave in lead 2 and le version of the T wave in leads 3 and aVF. There was no ther change in the QRS complexes from that recorded on S 3. Such QRS changes might conceivably have resulted f previous damage of the posterior wall of the heart. No r tionship between the QRS changes and the electric shock c be established. The transient and limited repolarization cha are less than one would ordinarily associate with a recen farction of the myocardium but correspond well with tho sociated with the onset of rapid heart action and arrhyth Subsequent tracings demonstrated continued normal rhyth

Atrial fibrillation discovered during the first examination shock, its timely restitution to a normal sinus rhythm, its fa to recur as would be expected in paroxysmal atrial fibrilla and its resemblance to other instances resulting from ele convulsive shock therapy [2] or accidental shock [1] indict the e tric shock as the cause of atrial fibrillation in this case.

Reexamination 10 months after the shock supported the pa tient's own contention that he was well. His blood pressure w 144/90 mm. Hg and his pulse regular at 72 beats per min After 25 trips mounting and descending from a 9-in. step wi three-quarters of a minute, his pulse rate rose to 90 beats p minute and returned to less than the resting rate (60 beats p minute) within three minutes after completing the exer A ballistocardiogram showed no significant abnormalities. T fluoroscopic appearance of the chest and heart was unchan from that of 10 months previously.

The patient continued well until last seen approximately t years after the accident. No relapse or subsequent rhythm d turbance was observed. Although the employer changed t patient's duty assignments to those which no longer requi work with high-tension circuits or exertion, the patient had n cardiac symptoms. When not at work, he climbs stairs as read as ever, does simple carpenter work on his home, and d some gardening.

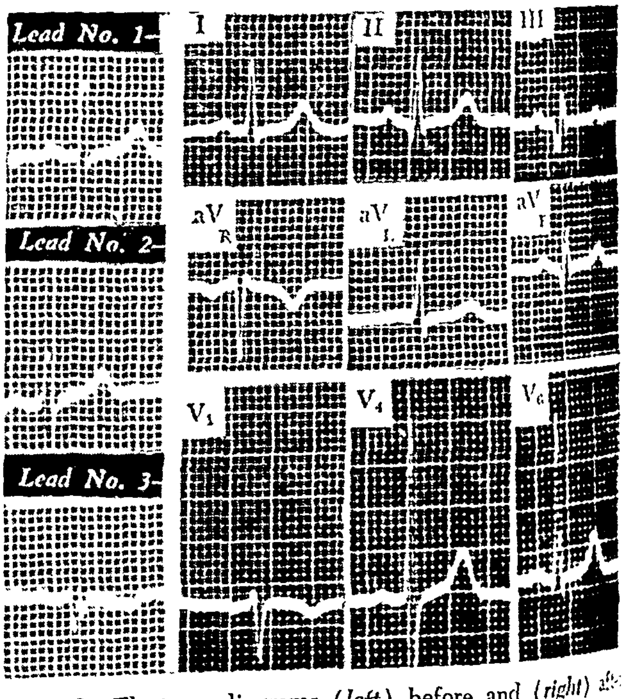

Fig. 2.—Electrocardiograms (*left*) before and (*right*) af recovery from electric shock.

Comment

Electric shock may produce a great variety of in juries, ranging from a simple unpleasant tinglin sensation to sudden death. The nature and extent o the injury is determined by the intensity of the curre its frequency, its pathway through the body, and it duration.

The peculiar effects of electricity upon the heart ve intrigued investigators since the time when only mitive sources of electricity were available. In the h century Abilgaard[3] used the Leyden jar to proce a shock of sufficient intensity to "kill" chickens ich he subsequently would "revive" by a second untershock. More recent investigators have demonated that an electric stimulation of the animal art may produce a variety of arrhythmias varying m a simple premature systole to ventricular fibrillan. Although the latter has never been conclusively monstrated to be produced by electrical stimulation the human heart, and further study of this point is arly needed, it is usually considered to be the mode sudden death incident to electric accidents.

The variety of cardiac responses to electrical stimution depends not only upon an adequate intensity of e stimulation but also upon the phase of the cardiac cle when it is applied. Nothing results from stimulan during the refractory phase alone. A short shock tween beats usually produces a simple premature at. A strong shock, occurring during the period of minishing contraction of the ventricles (that is, corsponding to the time of the T wave of the electrordiogram) produces ventricular fibrillation in the nimal[4] and commonly eventuates in its death. As the uration of an electric shock is increased, the chances at it will occupy this critical period of the cardiac ycle increase, as does its lethal potency.

Induction of fibrillation of the atrium of the heart y direct stimulation is ordinarily difficult. However, uring simultaneous stimulation of the vagus nerve, he threshold of the atrium is reduced, atrial fibrillation s easily induced, and the fibrillation will persist after he direct stimulation is stopped.[5] This fact, known ince shortly after the turn of the century, was clariied by Andrus, Carter, and Wheeler[6] in 1930. They lemonstrated that vagus stimulation shortened the efractory period of the atrium: "Due, however, to he shortening of the refractory period consequent upon stimulation of the vagus, they [the shock stimuli] fell upon tissue which was excitable but in which conductivity had, presumably, not yet returned to normal." In the case herein reported, a similar nechanism may be involved. Working in an ungainly [illegible] astride a pole certainly induces one to strain when changing position. Such straining accomplishes the essential features of the Valsalva maneuver, a potent natural method of increasing vagus tone. While this hypothesis does not lend itself to experimental confirmation, it is tenable and correlates the clinical situation observed with experimental studies.

The favorable outcome observed here corresponds with previous reports. In most instances, the rhythm returns to normal spontaneously or after the administration of either digitalis or quinidine. The latter, pharmacologically, seems to be the drug of choice; but neither was necessary in the case reported here. In one case, reported by Hickl,[1g] the rhythm did not revert to normal during a short period of observation; but one might conjecture that such could have been accomplished with treatment.

The gratifying lack of evident cardiac sequellae likewise corresponds to that in previous reports. Although the patient in our case has been protected by his employer subsequent to the accident, he has been none the worse for its occurrence.

Summary

Atrial fibrillation resulted from accidental electric shock received by a 52-year-old lineman during his work. The altered rhythm reverted spontaneously to normal within a few days. Recovery was apparently complete.

Addendum

In July, 1957, the patient's work record was reviewed. He was continuing to work full time. His only absences from work subsequent to the accident were the few days incident to healing of the skin burn and a period of nine days after an automobile accident in 1955.

670 N. Michigan Ave. (11).

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ASIAN INFLUENZA

IN THIS issue of THE JOURNAL (page 356) the nine-man Special Committee on Influenza of the American Medical Association publishes its first comprehensive report on the Asian influenza situation. The conclusions arrived at are the result of several meetings in Washington, D. C., with U. S. Public Health Service officials, a special meeting with the State and Territorial Health Officers Association, individual and group consultations with experts in the field of communicable diseases, and, finally, meetings of subcommittees and the Committee itself, to draw up the final statement.

The Committee was guided in part by the correspondence and many questions received by THE JOURNAL, and other A. M. A. departments, which helped to direct the final draft toward a practical all-encompassing reference. While the special report is as up to date as it is possible to publish at this time, the Committee is aware that any change in the incidence of reported cases, or in the virulence of the virus, might warrant a completely new approach toward the disease.

As of now, however, the clinical course of the disease remains moderate. There have been very few deaths reported from the disease itself. Where secondary bacterial infections do develop, it is anticipated that adequate chemotherapy will lessen the severity of such sequelae. The probability of an epidemic of Asian influenza this fall or winter is great, but a satisfactory vaccine has been developed, which should prevent the loss of essential community services due to the disease.

There is a difference of opinion concerning the dosage for adults. While the consensus favors 1 cc. subcutaneously, some believe that 0.1 cc. intracutaneously is adequate, especially since it reduces the severity of reactions. Even some laboratory studies are reported to support this belief. Furthermore, since many believe that the dose should be repeated within two weeks regardless of how it is administered, there is argument that the intracutaneous route will conserve supplies. However, until more data are available the physician will have to determine for himself how it should be given to his individual patients. He must not forget, though, that this vaccine is made from viruses grown on eggs, and patients who have a history of allergy may experience unusually severe reactions. Additional studies are now under way, vaccine production is being increased rapidly, and purity and potency of preparation are being closely examined. As information on these subjects becomes available it will be reported from time to time in THE JOURNAL.

KENTUCKY'S PIONEER PLAN

Four-way cooperation on a "doctor for your community" program in Kentucky might well be examined by other states whose own rural areas suffer from poor distribution of physicians. In the Organization Section of this issue (page 355) is a brief report describing how the Physicians Placement Service of the Kentucky State Medical Association, the Board of the Rural Kentucky Medical Scholarship Fund, the University of Louisville School of Medicine, and the state general assembly are working together to bring adequate medical care t communities which previously had failed to fin physicians.

It is a cooperative program in the truest sense—bringing out the best efforts of medical educator practicing physicians, medical association official businessmen, lay organizations, civic leaders, stat legislators, and other Kentuckians. The progra offers qualified medical students at the Universi of Louisville School of Medicine two financial i- ducements to practice in certain areas which are in critical need of doctors: full-tuition loans at the rate of $900 a year, and/or full refunds of past tuition payments.

The loan fund is financed by contributions from physicians, lay groups, and individuals, and grants of the general assembly. The state legislators also have voted to spend up to $500,000 a year in tuition refunds for University of Louisville School of Medicine alumni who practice in designated communities.

The two-pronged plan as it succeeds in Kentucky is not necessarily a panacea for other states which face isolated community doctor shortages. But it does illustrate that cooperative action at the state level might be the catalyst which accelerates solution to a physician maldistribution problem which knows no specific boundaries. It is an experience worth study, an experiment worth praise.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

As you may know, the House of Delegates of the American Medical Association at the Annual Meeting last June in New York reaffirmed its long-standing opposition to the compulsory coverage of physicians under the Old-Age and Survivors Insurance provisions of the Social Security Act.

At the June, 1957, New York meeting the House of Delegates also recommended a stepped-up informational program designed to reach every member of the Association and to explain the reasons underlying the position of the House on this issue. In the weeks and months ahead, therefore, I urge you to give careful attention to all educational materials dealing with Social Security coverage for physicians.

It has become more than ever imperative for physicians to study this subject closely because, for the past year or more, the Committee on Social Security for Physicians of the Physicians Forum has been confusing the issue with a barrage of dubious propaganda. The Physicians Forum, as many of you will recall, was the only American medical organization which supported national compulsory health insurance during the 1949-1952 debate on that proposal. Now, in 1957, many doctors question whether the Physicians Forum is really interested in OASI benefits for the profession or is actually concerned with that subject only as a stepping stone to help accelerate further expansions of the over-all Social Security system.

This is no mere academic question. It involves the consistency of the medical profession's historic position on the broad issue of individual enterprise versus government-planned security. In recent years our profession, probably more than any other single group, has resisted the socialist trend in this country and has stoutly defended the qualities of self-reliance and individual initiative.

We must bear in mind that the Social Security system, which some physicians would like to join, is the very same mechanism through which the American medical profession could eventually be socialized. Already enacted as amendments to the Social Security Act are the waiver of premium for disabled workers and the payment of OASI benefits at age 50 to persons with so-called permanent and total disability. Already proposed as amendments to the Social Security Act are the lowering or elimination of the age-50 qualification for permanent disability benefits, cash payments for the dependents of disability beneficiaries, cash benefits for temporary disability, "free" hospital care for OASI pensioners over 65, full-fledged national compulsory health insurance, and a wide variety of other expansions.

If physicians ever requested coverage for OASI benefits, would they not be placing themselves in a more difficult position to oppose many future proposals which would directly affect the shape of medical practice and medical care? Would they not be vulnerable to the charge that they are willing to accept a little bit of socialism for a personal financial benefit, but are opposed to other bits of socialism designed for the general public? These are among the many questions which physicians must decide in the immediate future.

They also must become informed about a variety of practical considerations. For example, is the Social Security system on a sound actuarial and financial basis, particularly in view of its tremendous future liabilities? Is it "insurance," offering a specified contract with stated premiums and guaranteed benefits? What is the truth about the "trust fund"? How many physicians would ever benefit from the retirement provisions under OASI?

When physicians study the answers to these and other questions, I am confident that the Association's policy will be upheld by an overwhelming majority.

David B. Allman, M.D., Atlantic City, N. J.

ORGANIZATION SECTION

SOCIAL SECURITY DISABILITY PROGRAM

The Committee on Medical Rating of Physical Impairment of the Board of Trustees reports the following recent developments in the Old-Age and Survivors Insurance disability program under the Social Security Act.

On July 17, 1957, President Eisenhower signed Public Law 109, which makes two changes in the program. These changes are:

1. The filing period is extended to July 1, 1958, during which applications for benefits may be made and the beginning period of an applicant's disability may still be established as early as the actual onset of disability provided all other requirements of the law are met. This change will benefit those individuals whose disability began some time ago and who did not apply for benefits before the previously established date of July 1, 1957, despite extensive efforts to publicize the need for timely filing.

2. Benefits will be paid concurrently to eligible veterans receiving compensation by the Veterans Administration for service-connected disability.

On June 30, 1957, the first regulations pertaining to disability under this program were published in the *Federal Register* (page 4362, vol. 22, number 119):

Meaning of disability; benefits based on disability

(a) Among the requirements an individual must meet to be entitled to disability insurance benefits, or to child's insurance benefits after attainment of age 18, is that he be unable to engage in any substantial gainful activity because of a medically determinable impairment and that his impairment be expected to continue for a long and indefinite period of time, or to result in death.

(b) In determining whether an individual's impairment makes him unable to engage in such activity, primary consideration is given to the severity of his impairment. Consideration is also given to such other factors as the individual's education, training and work experience.

(c) It must be established by medical evidence, and where necessary by appropriate medical tests, that the applicant's impairment results in such a lack of ability to perform significant functions—such as moving about, handling objects, hearing or speaking, or, in a case of mental impairment, reasoning or understanding—that he cannot, with his training, education and work experience, engage in any kind of substantial gainful activity.

(d) Whether or not the impairment in a particular case constitutes a disability is determined from all of the facts of that case. Examples of some impairments which would ordinarily be considered as preventing substantial gainful activity are set out in paragraph (e) of this section. The existence of one of these impairments (or of an impairment of greater severity), however, will not in and of itself always permit a finding that an individual is under a disability as defined in the law. Conditions which fall short of the levels of severity indicated must also be evaluated in terms of whether they do in fact prevent the individual from engaging in any substantial gainful activity.

(e) The examples are:

(1) Loss of use of two limbs.

(2) Certain progressive diseases which have resulted in the physical loss or atrophy of a limb, such as diabetes, multiple sclerosis, or Buerger's disease.

(3) Disease of heart, lungs or blood vessels which has resulted in major loss of heart or lung reserve as evidenced by X-ray, electrocardiogram or other objective findings so that, despite medical treatment, it produces breathlessness, pain or fatigue on slight exertion, such as walking several blocks, using public transportation or doing small chores.

(4) Cancer which is inoperable and progressive.

(5) Damage to the brain or brain abnormality which has resulted in severe loss of judgment, intellect, orientation or memory.

(6) Mental disease (e. g., psychosis or severe psychoneurosis) requiring continued institutionalization or constant supervision of the affected individual.

(7) Loss or diminution of vision to the extent that the affected individual has central visual acuity of no better than 20/200 in the better eye after best correction, or has an equivalent concentric contraction of his visual fields.

(8) Permanent and total loss of speech.

(9) Total deafness uncorrectible by a hearing aid.

(f) Under the law, an impairment must also be expected either to continue for a long and indefinite period or to result in death. Indefinite is used in the sense that it cannot reasonably be anticipated that the impairment will, in the foreseeable future, be so diminished as no longer to prevent substantial gainful activity. Thus, for example, an individual who suffers a bone fracture that has prevented him from working for an extended period of time will not be considered under a disability if his recovery can be expected in the foreseeable future.

(g) Impairments which are remediable do not constitute a disability within the meaning of this section. An individual will be deemed not under a disability if, with reasonable effort and safety to himself, the impairment can be diminished to the extent that the individual will not be prevented by the impairment from engaging in any substantial gainful activity.

SAFETY CONGRESS

The physicians of America will again join in presenting a program this fall at the National Safety Congress in Chicago. The A. M. A. Council on Industrial Health will co-sponsor a session, concerning vision in industry, with the American Society of Safety Engineers and the National Safety Council occupational health nursing section. Among the topics to be covered in the discussion of ocular safety programs are visual ability to meet job requirements, ocular protection, and proper first aid for ocular injuries. This program will be held on Thursday morning, Oct. 24, at the Congress Hotel.

PUBLICIZED TREATMENT FOR AMYOTROPHIC LATERAL SCLEROSIS DISCOUNTED

Major John T. Godfrey, U. S. A. F., reserve officer in the United States Air Force, is a victim of Lou Gehrig's disease, technically known as amyotrophic lateral sclerosis. Major Godfrey was flown to Schwenningen, West Germany, in early June, 1957, for treatment by Dr. Arthur Boss in that city. There was considerable newspaper, radio, and television coverage of this, and this coverage led to interest on the part of patients with similar diseases considering going to Germany for treatment by Dr. Boss. There were numerous inquiries regarding this treatment addressed to the National Institutes of Health, the surgeon general of the Air Force, and the American Medical Association, and members of Congress were besieged by their constituents. Because of this the surgeon general of the Air Force and the American Medical Association, Washington Office, requested that Dr. Francis M. Forster, while he was in Europe, visit Major Godfrey and Dr. Boss in Schwenningen. This visit had the approval of the German government in Bonn.

Dr. Forster is a member of the A. M. A.'s Council on Mental Health and of the Section on Nervous and Mental Diseases. He also is dean and professor of neurology at Georgetown Medical School and president of the American Academy of Neurology. In addition, he serves as a consultant in neurology to the surgeon general of the U. S. Air Force. On July 17 Dr. Forster visited the German doctor, Arthur Boss, in his clinic at Schwenningen, West Germany, and later prepared the following statement for the U. S. Air Force and the American Medical Association:

> Not having seen Major Godfrey professionally prior to July 17, 1957, I am at somewhat of a disadvantage in evaluating the possible effects of the therapeutic regime. However, Major Godfrey definitely presents at this time the classic clinical picture of amyotrophic lateral sclerosis, and there is no objective evidence of recovery from his neurological deficit. Dr. Boss is himself cautious and to quote him he is "skeptical." Dr. Boss will not divulge the nature of his treatment, and this is quite difficult to understand since physicians from ancient times are bound by the Oath of Hippocrates to share their knowledge with other physicians, and in modern times this is accomplished through writings in medical journals and by presentations at medical meetings. Dr. Boss states he has been using his treatment for 16 years but he has failed to publish it. It is unfortunate that Dr. Boss has not seen fit to present his therapy at the International Congress of Neurology being held at Brussels next week. I am advised that the lack of disclosure of therapeutic methods is contrary to the principles of the German Medical Societies. While the treatment has been employed by Dr. Boss for 16 years, he has not controlled his studies nor has he used precise, scientific follow-up procedures to evaluate his results. He states that he has "heard from patients two to three years after treatment" and he has concluded from this that they are cured.
>
> The entire medical profession and scientific societies hope and strive for the successful treatment of crippling diseases. This disease in particular has long been a target for neurological research and efforts. The possibility that Dr. Boss' treatment will succeed is remote; however, and to quote Dr. Boss "it can be a very dangerous treatment," and "it is not always successful." Since the treatment can be dangerous, it is not yet accepted nor indeed divulged and has not been scientifically evaluated. Treatment of larger numbers of patients is definitely contra-indicated at this time.

"DOCTOR FOR COMMUNITY" PROGRAM

The first physician to be refunded medical school tuition under a new "doctor for your community" program is J. W. Walker of Mount Vernon, Ky. Early last month he received a check for $900—half the tuition paid toward his graduation from the University of Louisville School of Medicine in 1945—because he chose to practice in Rockcastle County, which had been in critical need of medical care. If Dr. Walker remains in Mount Vernon, and that was his intent, he will receive another $540 next year. and the balance of his tuition, $360, the following year.

Any University of Louisville Medical School graduate is eligible to participate in this program set up by the school and the Kentucky general assembly. which has voted to grant up to $500,000 a year in state aid to bring more adequate medical care to designated rural areas. This month Dr. Robert E. Cornett of Jackson, Ky., was scheduled to receive $1,600, the first refund installment of his four-year tuition, for practicing in Breathitt County. (Tuition had increased in the 10 years since Dr. Walker graduated.)

Refund of tuition is one of two pioneer programs being pursued by organized medicine to relieve a shortage of physicians in certain "critical" areas of Kentucky. The state medical association is also co-sponsoring (with the University of Louisville School of Medicine and the Board of the Rural Kentucky Medical Scholarship Fund, headed by Dr. C. C. Howard) a loan plan for qualified medical students at the school. Under this project, benefiting 17 new students for the new academic year, annual loans of $900 are made. They are to be repaid at 2% interest after graduation, but if the borrower then practices in one of 10 rural Kentucky counties in dire need of medical care, the yearly loans are successively forgiven for each year of practice.

"Counting interest on the total loan, plus the $3.-200 tuition refund," said Dr. Howard, "a medical student now can get a total of about $7,000 if he practices in a critical area of the state."

During the past decade the scholarship fund has benefited more than 100 students through over $200,000 in finances contributed by physicians, other individuals, and organizations in Kentucky; last year the state general assembly appropriated its first annual $25,000 for the fund. Applicants need not be native Kentuckians—recipients this fall at the University of Louisville School of Medicine include one youth from Indiana and a young woman from California (who heard about the loan plan from the American Medical Association).

The state medical association's Physicians Placement Service committee, headed by Dr. Delmas M. Clardy of Hopkinsville, makes available to inquiring doctors a descriptive list of Kentucky communities which need help in securing medical service. (See editorial on page 352 of this issue.)

A. M. A. PREPARES LIABILITY KITS

For use in claims prevention and claims review programs, the A. M. A. Law Department is making available to each state medical society a packet of materials dealing with medical professional liability. The kit will contain reprints from the "Medicine and the Law" section of THE JOURNAL which deal with statutes of limitation, court decisions, and *res ipsa loquitur*. The results of an opinion survey and a report on medical professional liability case histories—keyed to each state—will also be included. Distribution is slated for Oct. 1.

SPECIAL COMMITTEE ON INFLUENZA

ASIAN INFLUENZA—A SPECIAL REPORT TO PHYSICIANS

The following report, prepared by a subcommittee consisting of Drs. Cortez F. Enloe Jr., Chairman, New York; Max L. Lichter, Detroit; and David Henry Poer, Atlanta, Ga., in consultation with the Surgeon General, U. S. Public Health Service, is presented for the guidance of the medical profession by the A. M. A. Special Committee on Influenza and has been authorized for publication in THE JOURNAL. FRANK W. BARTON, *Secretary.*

The A. M. A. Special Committee on Influenza has arrived at the following conclusions:

a. The probability of an epidemic of Asian influenza this fall or winter is great;

b. The United States population has no natural immunity to this type of influenza;

c. The most satisfactory vaccine possible has been developed;

d. The supply of this vaccine should soon be adequate to protect essential national services;

e. The vaccine is safe, except in patients with known allergy to eggs;

f. The course of the disease is moderate, in most patients, and there have been very few deaths reported due to the disease;

g. It is possible, but not probable, that the disease will increase in virulence; and

h. Chemotherapy is not considered effective in uncomplicated influenza cases. If secondary bacterial infection should result as a complication, it is anticipated that adequate antibiotic or sulfonamide therapy will lessen the seriousness of sequelae.

The occurrence of the "influenza epidemic" was first reported in the New York *Times* on April 17, 1957. At the suggestion of the Walter Reed Army Institute of Research, the 406 Medical General Laboratory of the Army in Japan was ordered to investigate the Hong Kong outbreak and within 30 days the responsible virus was isolated and identified as a new and different strain. In another 30 days (by late June), the first batch of vaccine had been manufactured by the Walter Reed Army Institute of Research and delivered to the National Institutes of Health, Public Health Service, for testing. This is a record to be proud of.

The history of epidemics of influenza shows that this virus generally does not change in virulence during an epidemic. As Dr. M. R. Hilleman of Walter Reed Army Institute of Research, who identified the Asian strain of the virus, has reported, the capacity for continuous and progressive alteration in antigenic composition is essential to the survival of influenza virus in the partially immune human host population. Because of this constant change, which at times may be very great, the physician with many cases of influenza must maintain prudent vigilance and the virologist must "sleep with one eye open." Having studied the behavior of the present virus, most authorities agree that the mortality in the first epidemic of Asian influenza will be low. However, physicians must recognize that we are dealing with an agile, chameleon-like microorganism which could return in a different guise after a brief pause for change of character—just as

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The Special Committee on Influenza consists of Drs. Harold C. Lueth, Chairman, James Z. Appel, Cortez F. Enloe Jr., Carroll P. Hungate, Hugh H. Hussey Jr., Max L. Lichter, David Henry Poer, Roscoe L. Sensenich, and Charles W. Steele.

it apparently did in the mild epidemic of the spring of 1917 and the catastrophic invasion in the winter of that same year.

A study of the world epidemiology patterns of Asian influenza and the confirmed outbreaks in the United States thus far leads to the inescapable conclusion that the country has been well seeded.

The Asian influenza was initially observed in Hong Kong. Then, Malaya, India, and the Philippines were hard hit; then Taiwan; then Japan. During this time, it appeared in U. S. Navy personnel who had visited these areas. By now, it has occurred in most countries, but not yet in epidemic proportions in all of them.

Here are a few case histories of how Asian influenza has spread, given to the Committee by C. C. Dauer, M. D., chief of the National Office of Vital Statistics.

A girl who attended a conference in Davis, California, where influenza broke out, traveled by train with others from that State to a conference in Grinnell, Iowa. The girl became ill before reaching her destination, and about a dozen of her fellow travelers were the first of about 200 cases that developed within a few days in Grinnell. A similar illness developed in many of the 1,700 delegates after leaving the conference. In another instance, a group of 35 foreign exchange students and two chaperones left San Francisco by bus for New York. Eighty percent of them were ill on or after their arrival in Salt Lake City. They were housed in private homes in Salt Lake City and 14 of the household contacts subsequently had influenza-like illnesses. A small group attending a religious conference in Kentucky experienced an outbreak of influenza. Delegates came from a number of States, but the first to become ill were those from California. The story of influenza at the Boy Scout Jamboree at Valley Forge, Pennsylvania, is still unfolding. Several scouts in a contingent from California were ill on board a train to New York and others developed respiratory infections after their arrival. The infection was mild, and doubts were expressed that the illness was influenza. Other cases of respiratory infection occurred at the Jamboree, at least one or two in nearly every State group. By the time the Jamboree ended, it was known from laboratory reports that influenza was present in the California group of cases and, as expected, many cases developed among various groups after the Jamboree. The fifth and last outbreak traced to California was in Corpus Christi where Navy personnel or their dependents developed the disease following the transfer of about 20 persons from San Diego. In the latter area, there had been an outbreak among recruits of the training station. Each of the five outbreaks described very briefly above has been confirmed by isolation of influenza type A viruses which were antigenically similar to the new Asian strain.

Two other illustrations can be given which show very clearly how influenza infection has been carried from one country to another. Such pathways were seldom traced in previous epidemics.

About 10 days after a number of U. S. Navy vessels had visited Valparaiso, Chile, an outbreak began in that country. Influenza-like illness had occurred on board at least one vessel, and one of them had come from a port in the United States where an outbreak of influenza had occurred. The epidemic began about July 22nd in Santiago and Valparaiso and, in the course of the next two or three weeks, about 25 to 30 percent of the population in cities were estimated to have been affected. About August 1st, crew members of a Chilean airline arrived in Miami, Florida, ill with influenza. Thus, the infection seems to have been carried from the United States to Chile and then brought back. The other instance concerns a group of foreign exchange students from several countries who arrived in New York earlier this month. Forty-four Turkish students traveled by train to western Europe. Cases of influenza developed in the group when they reached Belgrade and still others when they arrived in Vienna. A group of Austrian students boarded the train in Vienna and accompanied the Turkish students to Rotterdam. Because of the illness among them, the Turkish students were refused passage on a ship that was to take all of the students to New York. They arranged for passage on a plane and on arrival in New York, 9 more of them were ill. Five days later, the ship that carried about 650 students as tourist class and 200 other passengers arrived in New York with 50 active cases of influenza. Illness on the ship began in the Austrian contingent, and 150 to 200 were ill at some time during the voyage from Rotterdam. There was only one case in the nonstudent passengers and one in a crew member. Sick students were isolated in quarters after debarking in New York. One of them—a 17-year old boy from Greece—later showed signs of pneumonia and circulatory failure. He was hospitalized and died within 24 hours. Postmortem examination revealed a hemorrhagic pneumonitis. A coagulase positive staphylococcus was isolated from lung tissue, and an Asian strain of influenza A virus was recovered from lung and heart tissues. Four students who proceeded from New York to their destinations in New Hampshire, New York State, and California were reported to have developed influenza-like disease on arrival.

The lesson to be learned from these experiences is that the disease will cross national and state boundaries no matter what controlled measures are taken and it cannot be stemmed in communities by closing schools or other places of assembly.

Vaccination is the only means available today for the control of Asian influenza. To this end, a remarkable and prodigious effort has been put forth.

Recognizing that Asian influenza is an air-borne virus infection that cannot readily be controlled by the usual preventive measures, mindful of the efficacy of the vaccine, and aware of the problem of supply and distribution, the Special Committee on Influenza urges each physician to be guided, insofar as possible, by the following routine:

1. Preferably give 1 cc. of vaccine subcutaneously to adults.
2. The intracutaneous administration of 0.1 cc. may be used in lieu of the above-described method.

This vaccine contains 200 CCA (chick-cell-egg-agglutination) test units per cubic centimeter. Significant adverse reactions have been rare, according to the U. S. Public Health Service, although pain at the site of injection commonly occurred in 700 test patients. Of these, only one missed a day's work. The vaccine should not be administered to persons sensitive to eggs. Persons who are known to be allergic to eggs or chicken feathers may react unfavorably. Reactions among the aged are no more frequent than in other adults; however, the physician should give special consideration to very old patients with existing illness.

The Committee endorses the recommendations of the American Academy of Pediatrics concerning the administration of the influenza vaccine to children:

For preschool children (3 months to 5 years): 0.1 cc. intradermally or subcutaneously, repeated after an interval of one or two weeks.

For children 5 to 12 years of age: 0.5 cc. subcutaneously, repeated after an interval of one to two weeks.

For children of 13 years of age and older, the dose for adults (1.0 cc. subcutaneously in a single injection) may be used.

Although some individual physicians may have access, on occasion, to an adequate supply of the vaccine for their patients, the Committee hopes they will be reminded the vaccine is in short supply. For this reason, the Committee endorsed and adopted a resolution passed by the State and Territorial Health Officers in a meeting on Aug. 28, 1957, in Washington, D. C., which was referred to the Surgeon General, Public Health Service, for consideration. That resolution, dealing with the establishment of priorities to be given in the administration of the vaccine, recommended that priority be given to:

(1) Those individuals whose services are necessary to maintain the health of the community

(2) Those individuals necessary to maintain other basic community services

(3) Persons with tuberculosis and others who in the opinion of the physician constitute a special medical risk

The above recommendation is merely a guide and should be considered in the light of local conditions and situations. Certain local and state societies, alert to the problem, have already established priority groups in slightly different versions which the Special Committee recognizes as meeting problems peculiar to the involved areas.

Vaccine will be available in limited amounts for the next 30 days, and the prospects are that the supply will be larger after that time. Until such time when the supply of vaccine is adequate, the free and voluntary cooperation of each physician in adhering to locally established priorities is essential to the protection of the nation's health and vital services.

The Committee again emphasizes and urges each constituent medical society to take the lead in planning now, if they have not already done so, to meet the emergency problems of a possible influenza epidemic. A number of state medical societies are utilizing their state emergency medical service committees, since they are uniquely prepared and organized for emergency situations.

In the formulation of local plans, consideration should be given to expanded professional care through the utilization of all medical personnel, regardless of type of practice. Plans should include mobilization of other professional resources, such as nurses, nurses' aides, pharmacists, appropriate health and lay groups, and others. Action to make full use of hospital facilities should be explored, such as curtailment of elective surgery, diagnostic studies, etc. The Committee recommends that state and local programs be coordinated with public health agencies and state and local health departments. There should be close cooperation concerning diagnosing and reporting influenza cases. Joint planning may be advisable in many areas.

It is evident from experience gained in poliomyelitis outbreaks that the public looks to the medical profession and public health officials for leadership in these emergency situations. Each community should make a serious study of available resources and facilities and have suitable informational and educational programs to cope with epidemics that might occur. Constituent medical societies should take appropriate action to acquaint the general public with the plans and operational facilities being readied by the profession to cope with the emergency problems and should reassure them that there is no cause for alarm concerning an influenza outbreak in view of the fact that the illness is of short duration, it is generally mild and with few complications, and it has a very low mortality rate. Great reliance must, of necessity, be placed on home care in view of the high incidence rate which may be anticipated. Medical societies should plan for the dissemination of information to the public on symptoms and home care of patients.

In considering the disease itself, it has been estimated that 20% of those who have not been vaccinated for Asian influenza, and the same percentage of the 3 of every 10 whom the vaccine does not protect, will contract the disease. If this occurs, the outbreak in the community will probably be explosive and last for four or five weeks until the disease runs its expected course.

As in all instances when a disease is widespread, there is a tendency to attribute the symptoms of most patients one sees to the new disease. Physicians must be particularly aware of this fact. As one Army physician put it, doctors should remember that "all that fevers is not flu."

The symptoms consist of chills that occur with very little warning, and temperature that climbs to 103 or 104 F (39 to 40 C) and undulates in that range for from three to four days. The fever is accompanied by headache and general muscle pains. As the fever subsides, the aches and pains gradually vanish, the patient is generally left weak. The patient can expect to endure this convalescent period for another few days while normal health returns.

There is actually no specific therapy for the patient with Asian influenza. It is axiomatic that the person in health with the best nutritional status stands the best chance in a bout of any infectious disease. Once it strikes, bed rest, forced fluids, and symptomatic treatment are recommended. In a report that appeared in the Sept. 7 issue of The Journal, page 58, the Council on Drugs stated that little help can be expected from the sulfonamides or antibiotics when the condition is confined to influenza alone. However, should complications (e.g., pneumonia) occur or even be suspected, the patient should be hospitalized and appropriate chemotherapeutic measures be instituted.

It is difficult to state mortality rates of patients suffering pneumonia secondary to Asian influenza because of the problems of reporting in foreign countries. Differences in sanitation, nutrition, and medical care and other features in foreign countries make it hazardous to compare mortality rates with those anticipated in the United States. However, pneumonia appears to develop mainly in infants and in the aged, and most of the pneumonia deaths occurred in these groups.

The Committee endorses the policy of the American Hospital Association, which holds that hospitalization should be limited to cases of influenza involving complications or to those with other diseases which might be aggravated by influenza.

All patients with influenza should be isolated insofar as it is convenient for good home or hospital care; every step should be taken to protect the patient from sources of bacterial infections. Certainly, during the acute stage of the influenza the patient should not be allowed to have visitors.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

POSTGRADUATE COURSES

Information on the following postgraduate courses for practicing physicians has not appeared previously in The Journal.

An intermittent short course, **Medical Management of Digestive Disorders**, primarily for general practitioners will begin Oct. 1, 1957, at the Yale University School of Medicine, New Haven, Conn. Meeting for two and one-half hours on each of eight consecutive Tuesdays at a fee of $40, the course will utilize patient demonstration, lecture, panel, and open question periods as methods of education.

The Postgraduate Division of the University of Southern California School of Medicine, 2025 Zonal Ave., Los Angeles, will present at a hotel a postgraduate course Nov. 7-9, 1957, on the **diagnosis and treatment of common endocrine disorders**. This continuous 2½-day 17-hour course, primarily for general practitioners, will consist of live clinics with patient demonstrations, lectures, panels, open question periods, and audiovisual aids, at a fee of $60.

A 1-day 8-hour **dermatology clinic** primarily for general practitioners will be presented by the University of Southern California School of Medicine, Nov. 6. The teaching methods will include live clinics with patient demonstrations, lectures, audiovisual aids, and open question periods, for a fee of $25.

A six-month full-time postgraduate course, **Physical Medicine and Rehabilitation**, will begin Jan. 6, 1958, at the Highland View Cuyahoga County Hospital, Cleveland, in cooperation with Western Reserve University. This course is designed for specialists in physical medicine as well as for those physicians now in residency training in this field. It will consist of three sections. Section 1, continuing for six weeks, will include 42 hours of lecture, 24 hours of conferences, and 114 hours in wards and clinics. Each student's program will be planned individually so that he may concentrate his nondidactic training hours on those subjects most closely relating rehabilitation to his own private practice or study. Section 2, lasting 12 weeks, will include 64 hours of lecture, 40 hours of conferences, and 54 hours in affiliated facilities. Section 3, of 8 weeks' duration, will include 32 hours of lecture, 40 hours of conferences, and 168 hours in wards and clinics. Enrollment is limited to 12, at no fee. Inquiries should be addressed to Dr. Charles Long II, Department of Physical Medicine and Rehabilitation, Highland View Cuyahoga County Hospital, Harvard Road, Cleveland 22, Ohio.

An intermittent postgraduate course on radium therapy, titled **Radiology PM33**, will begin May 6, 1958, at Mount Sinai Hospital, 5th Avenue and 100th Street, New York, in cooperation with Columbia University. This solely lecture course for full-time specialists will be held on six consecutive Tuesdays, at a fee of $50.

COUNCIL ON MEDICAL SERVICE

REHABILITATION AND RESTORATIVE SERVICES

Howard A. Rusk, M.D.
and
Michael M. Dacso, M.D., New York

This is the sixth of a series of papers on various aspects of aging. Each paper has been prepared for the Committee on Aging by an authority in the field. When completed, the series will be published in booklet form.

Medical rehabilitation, or restorative medicine, as it has sometimes perhaps more aptly been called, emerged from the general background of clinical services as an answer to a long-felt need rather than as an arbitrary separation of a specialty. It is concerned with the medical care of all those who, as a result of illness or trauma, are left with a permanent impairment of their physical functions.

The broadened concept of rehabilitation has resulted in more than the creation of a new medical specialty. It has redefined and broadened the physician's responsibility to his patient. It has called upon the physician to extend his services to activities which, by conventional standards, had not been considered strictly a medical responsibility. The physician's responsibility ends only when he has restored his patient to the best and most productive life possible, as judged by two primary criteria—ability and disability.

With the recognition that chronically ill and disabled patients had problems which went beyond their physical pathology, it became evident that if these problems were not met, the results of medical care would be negated. Restorative medicine emphasizes the point of view that, in addition to the technical restoration of health, the proper utilization of restored functions is fundamentally the physician's responsibility.

This does not imply that the already overburdened physicians should involve themselves in the details of strictly social and vocational problems. This would result in the uneconomical use of a scarce and highly skilled profession. However, it is increasingly being recognized that the physician's responsibility is to know and to utilize all of the resources and coprofessional services that will lead to the optimal utilization of his patient's functional capacities. He must be captain of the team. He must write the prescriptions for social and vocational needs and see that they are properly filled just as he would for drugs or diet.

Foremost among those whose physical functioning is impaired by chronic illness or other disabling conditions are the rapidly increasing number of older people. In an effort to simplify the discussion of restoration in this large and complex group of elderly patients who could benefit from a "total approach" program without regard to etiological considerations, we have classified them into the following three empirical groups: (1) obviously handicapped patients (those with hemiplegia, arthritides, fractures, amputations, and neuromuscular diseases), (2) chronically ill patients who do not have signs of a manifest disability (those with chronic cardiac and pulmonary diseases), and (3) elderly persons who are not obviously ill but whose physical fitness is impaired.

Techniques in Clinical Diagnosis

The first step in successful rehabilitation is accurate clinical diagnosis. In dealing with physically disabled patients, it is obvious that conventional diagnostic and laboratory techniques are insufficient when it comes to evaluating physical disabilities and determining functional capabilities. Since a majority of disabled patients suffer from some involvement of the locomotor and/or neuromuscular systems, new methods of evaluating their efficiency have been added to the diagnostic armamentarium. The most important of these methods are (1) systematic testing of the strength of individual muscle groups, definitively and accurately measured, (2) determination of the range of joint motion, and

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Professor and Chairman, Department of Physical Medicine and Rehabilitation (Dr. Rusk) and Associate Professor, Department of Physical Medicine and Rehabilitation (Dr. Dacso) New York University–Bellevue Medical Center.

Members of the Committee on Aging are Drs. H. B. Mulholland, Charlottesville, Va.; Edward L. Bortz, Philadelphia; Henry A. H[illegible], Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; [illegible] G. Klumpp, New York; Frederick C. Swartz, Lansing, Mich.; [illegible] Cecil Watson, Omaha. Committee Staff: Mr. George W. Cooley, [illegible] Mr. Hubert B. Norton, Research Assistant.

(3) objective testing of representative activities essential for daily living (briefly summarized as activities of daily living [ADL]).

The need for an objective method for determining muscle strength has long been felt in clinical medicine. The quest for more definitive measurements continues. Until more accurate methods are developed, we must use the one that is currently accepted and generally satisfactory for clinical needs. This is the method devised by Lovett in 1932 to determine the muscle strength of his patients who had poliomyelitis. Lovett's method measures muscle or muscle group performance against a series of graded resistances as an objective expression of their strength. Accordingly the muscles can be graded as follows: zero, trace poor, fair, good, and normal. Additional subgradations allow for an acceptable accuracy in practical determination of muscle power. The most obvious shortcoming of this method is the fact that the examiner's subjective judgment cannot be excluded in applying the test resistance and evaluating the muscle response. Errors due to subjective judgment can be substantially minimized if all subsequent tests are made by the same examiner.

The objective measurement of the range within which a joint can move can be determined with much more accuracy than the strength of a muscle. The clinician who wants to learn this diagnostic method will find that the literature is rich in various techniques, all of which have advantages and disadvantages. In testing the range of a joint excursion, it is important to know that various joints have their physiological limitations determined by their anatomic structure and their relationship to the surrounding soft tissues. The accurate knowledge of these limitations is fundamental in accurate assessment.

The most recent addition to the diagnostic techniques in restorative medicine is the testing of the ADL. As previously suggested, ADL testing uses an empirical list of everyday activities without whose unimpaired performance efficient living is very difficult and sometimes impossible. ADL are customarily divided into three main groups: (1) self-care activities, (2) ambulation, elevation, and traveling activities, and (3) hand activities. The method practiced in our department calls for the testing of almost 100 different activities. The deficiencies in ADL are determined by the physician or, more usually, by the specially trained nurse or therapist. The tests are absolutely necessary for the establishment of adequate training programs. Our objective in function is not just the training of muscles or growth of muscles, but physiological exercise.

A careful analysis of the patient's general condition with the additional information gained from these functional tests will give the clinician a reliable picture of the nature and degree of the patient's physical disability. After the diagnosis has been made, an equally specific prescription for rehabilitation therapy must follow. Several reference books[1] giving definitive evaluation techniques are available.

Since documentation of the patient's improvement is important for medical and often for legal purposes, reliable recording methods are of great importance. Special charts are available for all functional diagnostic tests. Electrodiagnostic methods such as use of strength-duration curve for reaction of degeneration, galvanic tetanus ratio, chronaxy, and the most recent addition, electromyography, have greatly enhanced accurate diagnosis and evaluation of disability.

Therapeutic exercises are of primary therapeutic importance in restorative medicine. These purposeful and graded activations of certain specified muscles or muscle groups aim to make them stronger, improve their endurance and coordination, and generally improve their over-all functional efficiency. The objective in training is not just to strengthen muscles for the sake of strength, but, further and in addition to this, to increase their functional efficiency.

A basic understanding of muscle physiology is fundamental, without which therapeutic exercises should not be undertaken, just as no drug should be prescribed without a precise knowledge of its pharmacological action. The systematic reeducation and reconditioning of the general musculature imposes extra demand on the cardiovascular and respiratory system, and, indeed, affects almost every function of the human body.

Physical Restoration

The physical restoration of the disabled elderly patient (while generally the same diagnostic and therapeutic procedures are used as for the younger age group) shows many special problems which warrant discussion. One of the major differences is that in the younger handicapped person the problem is limited to a crippling condition in an otherwise healthy body; in the case of the older patient, however, the crippling condition is superimposed on the pathology of the aging process. This, in practice, means that in the elderly patient the restoration of the physical disability can rarely be separated from definitive medical care. Consequently, the physician engaged in the physical restoration of the disabled aged must possess a broad clinical knowledge of both conventional and restorative medicine.

Since the chronically ill and disabled aged constitute an ever-increasing proportion of every clinician's practice, the responsibility for these patients can no longer be placed in the hands of a few specialists. Indeed, it is the responsibility of every practicing physician to acquaint himself with the simpler methods of restorative medicine and to apply them in his practice. A number of rehabilitation courses are being offered on the postgraduate level in the major teaching centers which in a comparatively short time equip the physician with adequate knowledge to deal with common physical disabilities. The rehabilitation centers and services supplement rather than supplant the functions of the practicing physician. As in all other fields of clinical medicine, the bulk of services must be rendered by him. Highly specialized rehabilitation centers should be utilized primarily for the severely disabled. The role of such centers in the total program of restoration is fundamental.

The goals of restorative medicine in the older groups vary from those in the younger. In rehabilitation of the young, the vocational job objective is primary. In the elderly patient, vocational rehabilitation is usually secondary. Nevertheless, the absence of a vocational goal does not minimize the value of restorative medicine for the aged. The fact that the patient who previously had functional impairment regains his self-sufficiency may very well release a younger person for gainful employment. In such cases the rehabilitation of the unemployable elderly person can well be considered as indirect vocational rehabilitation. But even more important is the restoration of dignity and self-respect.

The medical and economic significance of the aging group is being increasingly recognized. The number of restorative services for the aged, though still very small, is slowly growing. The federal government, which, through its Office of Vocational Rehabilitation, has operated a successful vocational rehabilitation program, has now recognized its share of responsibility in the rehabilitation of those who no longer could be counted on in the labor market. As a result of this recognition, the various health agencies of the government are working on plans which are primarily intended to stimulate interest and, if need be, support local activities in geriatric rehabilitation.

In some communities, without any outside assistance, old-age homes are adding rehabilitation facilities to their health services. It has been our experience that, in many communities where such services have been established, one or more of the local physicians has initiated such plans. Since this is an important public and personal health problem, the support and carrying out of such services by the physicians is not only desirable but a moral obligation. Thereby they will not only discharge a professional duty but also contribute to good public and professional relationship between the medical profession and the community. Some resources that may be used in rehabilitation planning are (1) the United States Department of Health, Education, and Welfare and its various bureaus and divisions, (2) state governmental agencies, (3) religious and various other voluntary agencies, (4) the National Committee on the Aging, New York City, and (5) special committees of the American Medical Association and state or county medical society.

Conclusions

The first objective of medical rehabilitation is to prevent or to eliminate the disability if that is possible; the second, to reduce or to alleviate the disability to the greatest extent possible; and the third, to retrain the person with residual disability to "live and work within the limits of his disability, but to the hilt of his capabilities."

One of the most important tools in management of the older patient is the beneficent use of stress. All of our lives we regulate the function of our physical, emotional, and endocrine systems with our stress reaction. In the older patient stress must still be used but in smaller doses. Continuing stimulation, whether it be social, vocational, or cultural, is the only antidote for atrophy of disuse. If this concept is to be followed, all of the community resources must be utilized—governmental, religious, voluntary, and professional. The dynamic utilization of a total restorative program as has been briefly outlined means happier, healthier, and more productive and dignified lives for our aging population.

The standard form for manual muscle testing may be obtained from the National Foundation for Infantile Paralysis, 310 E. 42nd St., New York 3. Copies of tests for "Physical Demands for *Daily Living*" may be obtained upon request from the Institute of Physical Medicine and Rehabilitation, New York University–Bellevue Medical Center, 400 E. 34th St., New York.

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MEDICINE AND THE LAW

PROFESSIONAL LIABILITY INVOLVING PHYSICIANS IN FEDERAL GOVERNMENT SERVICE

This is the 15th in a series of articles dealing with medical professional liability. An editorial (page 360) and a chronological résumé (page 364) appeared in The Journal, *Feb. 2. The preceding articles in this series have been published weekly in* The Journal *from Feb. 9, 1957, to April 6, and since then intermittently.*—Ed.

As part of a comprehensive study of medical professional liability, the Law Department of the American Medical Association has made a study of the particular effect of the problem on physicians in federal government service. The federal statutes and court decisions governing federal physicians' liability were studied and the Departments of the Army, Navy, Air Force, and Justice, along with the Veterans Administration and the Public Health Service, were queried concerning their experiences and views on the subject.

Undoubtedly, the federal physician is in a much more advantageous position as regards professional liability claims than is his fellow practitioner in nongovernmental practice. First of all, if a lawsuit is filed involving alleged negligence in the performance of his professional duties for the government, there is a good possibility that he will not even be named as a party defendant to the action. If the physician is named as a defendant, the government will almost always be named as a defendant also and the physician will, if he so desires, be defended by the Department of Justice at no expense to himself. Thus, he not only avoids the heavy expense of litigation, but, in having the legal, investigative, and financial resources of the United States government at his disposal, he has a definite advantage in any lawsuit. Finally, if a judgment is secured against him in a case where the United States is a co-defendant, satisfaction will undoubtedly be sought from the more solvent party—the United States government.

This unique situation in which the federal physician finds himself is due primarily to the existence of the Federal Tort Claims Act.[1]

In order to better understand the professional liability situation of the federal physician, a discussion of the Federal Tort Claims Act and the other statutes controlling this liability will be helpful. Prior to 1946, the United States government could not be sued without its consent for the negligent acts of its employees and agents. This was due to the immunity from suit inherently possessed by all sovereign governments.

Thus, many persons who were injured by federal employees while those employees were acting within the scope of their employment were without legal redress, except against the employee. Because suit could not be brought against the government to recover damages for these injuries, numerous private bills for relief were introduced into Congress. The legislators felt that they were in no position to judge the merits of these numerous bills and recognized the injustice to the citizens brought about by the government's immunity to tort suits. They, therefore, enacted the Federal Tort Claims Act. This statute waived the government's immunity to tort suits and placed the United States in a position similar to that of any other employer. The pertinent part of this statute, as amended, states:

> . . . the district courts . . . shall have exclusive jurisdiction of civil actions on claims against the United States, for money damages . . . for injury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of his office or employment, under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. [28 USCA 1346 (b)]

The effect of the passage of this act on government physicians was to make the United States liable for any negligent or wrongful acts that they might perform within the scope of their employment. As indicated earlier, in actual practice under the act, the individual physician quite often is not joined as a defendant in a professional liability suit arising out of his activities. Moreover, when a judgment is obtained under the act, any subsequent action against the physician concerning the same subject matter is barred whether the physician was a defendant in the earlier action or not.[2]

Although the Federal Tort Claims Act renders the United States amenable to suit for the tortious acts of its employees, the government's liability is based, just as is the liability of any employer, on the doctrine of *respondeat superior* (let the master answer).[3] This ancient legal doctrine holds that a master is civilly liable for the acts of his servant when the servant is acting within the scope of his employment.[4] The basic philosophy underlying this rule is that he who derives a benefit from an act which is performed by his servant should answer for any injury caused to a third person by the servant in the performance of that act.

Ordinarily, the major difficulty in applying the rule of *respondeat superior* is in determining whether the employee was acting within the scope of his employment. The test for resolving this question has been stated to be as follows: "The test of one's liability for the act or omission of his alleged servant is his right and power to direct and control his imputed agent in the performance of the causal act or omission at the very instant of the act or neglect." [5]

However, in actual practice, there has been little difficulty in establishing the government's responsibility in cases involving physicians in federal service. Since these physicians are salaried employees and since their services are performed mostly in government facilities, no serious question usually arises as to the application of *respondeat superior*. The tort act defines "scope of employment" to mean "acting in the line of duty" when applied to a member of the military or naval forces.[6] The use of this latter phrase, however, does not alter the application of *respondeat superior* to the acts of members of the armed forces,[7] nor does it in any way enlarge the responsibility of the United States for the tortious acts of members of the military.[8] Under this definition, the federal government remains liable for the acts of persons in the military service in the same manner as a private employer is liable for the acts of his employees.

Two cases delineating the government's liability where the question was raised as to whether the employee was acting within the scope of his employment are *Watt* v. *U. S.*[9] and *Dishman* v. *U. S.*[10] In the Watt decision it was ruled that the government was not responsible for the negligent operation of a government truck by a National Guard sergeant because the man's job description did not provide for his driving military vehicles and therefore he was acting outside the scope of his employment. Of course, in this case, suit could still be brought against the individual, inasmuch as it is well settled that members of the armed services remain individually liable for their torts.[11] In the Dishman case, an employee of a Veterans Administration hospital mistakenly had carbolic acid poured into his ear while being treated by a Veterans Administration physician for an ear pimple. The court held that the government was liable for the injury, as the treatment of the minor ailments of employees was authorized by VA regulations and, therefore, the physician was acting within the scope of his employment.

Even if a government physician is acting within the scope of his employment, the United States may not be liable under the Federal Tort Claims Act if the cause of action falls within certain specific exemptions to the act. For example, the act excepts from its coverage actions based on assault and battery.[12] Many professional liability suits are based on this tort, particularly those involving unauthorized operations and treatments. In *Moos* v. *U. S.*[13] the plaintiff's right leg and hip were operated on in a Veterans Administration hospital when it was his left leg and hip which required surgery. His suit for the unauthorized operation was dismissed because it was in fact an action for assault and battery.

Other important exclusions under the act are causes of action arising out of the combatant activities of the armed forces [14] and causes of actions based upon the exercise of a discretionary function or duty on the part of a federal employee.[15] The combatant exclusion would seem to be of no great importance to federal physicians at this time because servicemen, as a rule, cannot bring suit under the act. It has been held, however, that a veteran was barred from bringing suit under the act for injuries received during a physical examination in a VA hospital because the examination concerned a wound received during combat and, therefore, the claim arose out of the combatant activities of the Army.[16] This decision appears even more questionable in view of a recent decision of the Supreme Court that an ex-serviceman's suit based on a negligent operation in a VA hospital is not barred merely because the injury causing the operation was received when the plaintiff was a member of the armed forces.[17]

The exclusion in the act of causes of action based upon discretionary activities has caused the courts a great deal of trouble in determining what is and what is not a discretionary act. It has been held that admitting dependents of military personnel to government hospitals is discretionary [18] and that no action will lie which is based on the refusal to admit, even when that discretion is abused.[19] Once the discretion is exercised and the patient admitted, the discretionary function ceases and the government is liable for any subsequent negligent acts.[20] Thus, it was held that the use of an anesthetic containing a harmful substance was not a discretionary act and did not fall within the discretionary exception to the act.[21]

An important case on this point decided last year is *Fair* v. *U. S.*[22] In this case, an Air Force officer was detained for a psychiatric examination after he had threatened the life of a student nurse. The post provost marshal was alleged to have promised the girl and her two detective bodyguards that he would notify them when the officer was released. He failed to do this, and when the officer was released, after a cursory examination, he killed the girl and her two guards. The government contended that releasing the officer was a discretionary act on the part of the physician. The Court of Appeals reversed the dismissal by the trial court, ruling that the recent decisions of the Supreme Court in *Indian Towing Co.* v. *U. S.* [23] and in the Eastern Airlines case[24] had expanded the coverage of the Federal Tort Claims Act so that the discretionary act exclusion now is limited to those decisions made on a policy-making or planning level. Decisions made on an operational level, such as the one in the present case, could not be used as a basis for denying a cause of action under the act even though some discretion is involved.

The Court of Appeals also stated that the Indian Towing and Eastern Airlines decisions ended any contentions by the government in Federal Tort Act cases that the acts of government employees were strictly "governmental acts" for which there can be no liability since there are no similar acts for which a private employer could be held liable. The Supreme Court has ruled, in effect, that the question of whether an act is governmental or nongovernmental has no place in federal tort cases, and that the government is liable for all activities which it does not perform with due care and which are not otherwise specifically excluded by the terms of the act itself. The practical effect of these decisions on federal physicians is to eliminate any bar to professional liability suits on the grounds that their actions were discretionary or governmental, and to have their acts adjudged strictly according to their negligent or wrongful nature.

In addition to the causes of action specifically excepted by the act itself, two major groups of claimants are generally barred from bringing federal tort actions. They are civilian government employees covered by the Federal Employees Compensation Act[25] and members of the armed services. At one time, a government employee had an election between proceeding under the Tort Act or the Federal Employees' Compensation Act.[26] However, in 1949 Congress amended the latter act so as to make it the exclusive method of compensation for a civilian employee killed or injured "while in the performance of his duty."[27] Whether this exclusive remedy provision will particularly affect professional liability suits by civilian employees is not clear. In *Dishman* v. *U. S.*, *supra*, the District Court held that a Veterans Administration employee could bring a federal tort action based on the negligence of a government physician in treating his ear because the original cause of the suit, an ear pimple, was not incurred in the performance of his duty and therefore the employee's claim was not governed by the Federal Employees Compensation Act. It would follow from this decision that the great majority of ailments of civilian employees would not be exclusively controlled by the Compensation Act. However, very few cases have been found involving claims under the Tort Act by civilian employees against government physicians. This would indicate either that these claims are being handled under the Compensation Act or that very few civilian employees are being treated by government physicians.

If federal tort suits by civilian employees are barred by the Compensation Act, it would appear to increase the possibility of suits by the employees against the physicians as private individuals. The United States could not interevene and make itself a party in such a suit against a government physician as a private individual. The same danger of suit against the physician personally exists where pension or compensation benefits are being paid by the government to an individual, who is not a serviceman, for injuries received as a result of medical treatment. Such compensation may be used by the government to reduce the damages awarded the injured party in any subsequent federal tort action.[28] If this dimunition in damages would be substantial, the injured party might well elect to sue the physician individually, as the physician could not use the payments by the government to reduce the *damages collected from him.*

As mentioned above, it has now been clearly decided by the Supreme Court that members of the armed services and their representatives cannot bring suit against the government for injuries or death sustained by a serviceman while on duty. Previously there was some confusion on this question among the various federal circuits, and the decision of the Supreme Court in *Brooks* v. *U. S.*[29] did not clarify the situation. There it was held that a serviceman on furlough could sue the government under the Tort Act for injuries arising out of a collision with an Army truck.

In 1950, the question of the serviceman's right to sue was definitely settled in *Feres* v. *U. S.*[30] This opinion actually embraced three cases. One, *Jefferson* v. *U. S.*,[31] involved a suit by a veteran who had had a towel left in his stomach during an operation which he underwent while still in the Army. Another case, *Griggs* v. *U. S.*,[32] concerned an Army officer who died after surgery and treatment in an Army hospital. The Feres case involved an Army officer who had died in a barracks fire. The Court held that none of these claims could be brought under the Federal Tort Claims Act because the injured parties were all servicemen on duty at the time of their injury or death. The opinion stated that members of the armed forces have been financially provided for by the government in many different ways and that traditionally members of the military could not sue the government for injuries received while on duty. Furthermore, to allow servicemen to sue for every real or fancied wrong would bring chaos to the order and discipline of the military services.

While this decision has been severely criticized, it does clearly establish the status under the Federal Tort Claims Act of the largest group to which the government physician renders his services. The Feres decision has caused the dismissal of numerous professional liability suits involving government physicians and members of the armed services.

Although it might be expected that the denial to servicemen of Federal Tort Claims relief would cause additional suits to be filed against government physicians as individuals, there is no indication of any such trend. The Department of the Air Force states that no Air Force physician has ever had to pay any judgment arising out of a professional liability claim. The information received from the other services would indicate a similar situation. Apparently then, the Feres rule has aided the government physician's liability situation rather than damaged it.

In order to determine the actual experiences of the various governmental agencies with professional liability claims, requests for this information were sent to the Departments of the Army, Navy, Air Force, and Justice, the Veterans Administration, and the United States Public Health Service.

In the 10-year period from 1947 to 1957, the Department of the Army reported 36 suits involving alleged medical professional liability. This identical number of suits was also reported by the Navy. It is the largest number reported by any governmental service. This, of course, is to be expected, considering the large number of persons under Army and Navy jurisdiction and their extensive medical programs.

Of the 36 actions reported by the Army, 7 resulted in compromise settlements, 2 resulted in judgments for the claimant, 6 are still pending, and 21 were either decided in the government's favor or withdrawn. Of the seven cases settled, only three were for substantial amounts. Two actions, settled respectively for $47,500 and $30,000, involved the administration of caudal anesthetics at childbirth. The third, resulting in a $10,000 payment, involved a transfusion of improperly labeled blood. The two suits ending in judgments against the United States resulted in substantially higher payments. The Cannon case,[33] in which an operation for varicose veins was performed in a negligent manner, resulting in extensive additional surgery, ended in a verdict for $123,904. In the Grigalauskas decision,[34] where undiluted lactated Ringer's solution was mistakenly applied to a newborn infant, the verdict was for $84,650. Included in the 36 actions involving Army physicians were 11 based on alleged negligence in performing surgery, 5 involving allegedly negligent blood transfusions, 3 based on the administration of medicaments, and 2 each involving caudal anesthetics, failure to diagnose breast cancer, alleged negligent handling of heating devices, and psychiatric confinements.

Of the 36 cases reported by the Navy Department, 13 are still pending, 14 have been decided in the government's favor, 3 resulted in verdicts for the plaintiffs, and 6 were settled for varying amounts. The two largest compromise payments, for $40,000 and $30,000, involved the death of a patient following childbirth and the paralysis of a foot and ankle following a knee operation. It has been reported,[35] however, that the Department of Justice recently announced that it settled a suit involving the administration of a spinal anesthetic in a naval hospital for $175,000. This would be the largest amount awarded a claimant in a professional liability suit involving a government physician. Six of the suits reported by the Navy Department involved medication, four each had to do with diagnosis and anesthesia, and three each involved surgery and burns from heating devices.

The Air Force states that it has had 12 suits involving its physicians since 1950. Of these, six resulted in settlements or judgments in favor of the claimants, one was dismissed by the District Court, and five are still pending. Except for two cases involving foreign matter being left in the patient after surgery, these 12 cases involve no common act of alleged negligence.

Although the Veterans Administration did not supply any statistical data concerning professional liability suits involving its physicians, it did state that these suits generally reflect alleged improper diagnosis, negligence in the performance of surgical procedures, and errors committed in the administration of medicine or drugs. Their letter also noted that in only two or three cases have Veterans Administration physicians been named as co-defendants. Usually, the suits have been against the United States as sole defendant.

The surgeon general of the Public Health Service reports 15 suits involving physicians employed by the Public Health Service during the period July 1, 1952, to June 30, 1956. Five of these are pending, four have been decided in favor of the government, and the remaining six resulted either in judgments for the plaintiffs or in compromise settlements. These latter six actions resulted in the payment of $114,000 by the government, an average of $14,000 per case. Altogether, $480,000 was sought by the plaintiffs in these suits. Except for two cases involving alleged negligence during surgery, no common acts of negligence are found among the Public Health Service suits.

Conclusions

The professional liability situation of the government physician appears much brighter than that of his fellow practitioner in nongovernmental practice. The persons to whom the government physician renders medical services have many choices of recourse for injuries received during treatment. Some course other than seeking money damages from the physician himself is usually chosen. Through the Federal Tort Claims Act, the Federal Employees Compensation Act, and the various veterans statutes, a claimant can be fairly compensated by the United States government without involving the physician in litigation. The reports of the governmental departments contacted in this study indicate that in the armed forces and the United States Public Health Service there are relatively few serious professional liability cases arising out of the medical activities of physicians working for such agencies.

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ARTIFICIAL INSEMINATION

This is the fourth in a series of six articles dealing with the necessity for and proper format of certain medicolegal forms. The subjects to be covered are (1) consent to operations and other medical procedures; (2) patient's right to privacy; (3) confidential communications and records; (4) artificial insemination; (5) the physician-patient relationship; and (6) autopsy.

This material has been prepared and will be published in book form by the Law Department of the American Medical Association under the title "Medicolegal Forms with Legal Analysis." The book will include extensive legal citations and a substantial number of additional forms which have not been included in this series of articles.—Ed.

If recent literature is to be believed, physicians are more and more being asked to perform, and are performing, artificial insemination procedures. Artificial insemination may be performed using the semen of the woman's husband or the semen of a donor who is, or should be, unknown to both the woman and her husband and who, conversely, should not know either of them. If the semen of the woman's husband is used the procedure is known as AIH (artificial insemination homologous); if the semen of some other man is used it is known as AID (artificial insemination donor). In all probability, AIH poses few, if any, legal problems inasmuch as the child is actually their biological offspring.

In *Doornbos* v. *Doornbos* an Illinois trial court said that AIH "is not contrary to public policy and good morals, and does not present any difficulty from the legal point of view." But of AID, the court said, "Heterologous Artificial Insemination . . . with or without the consent of husband, is contrary to public policy and good morals, and constitutes adultery on the part of the mother. A child so conceived is not a child born in wedlock and therefore illegitimate. As such it is the child of the mother and the father has no right or interest in said child." The state's attorney appealed only from the decree of divorce which was silent as to the legitimacy of a child born by heterologous artificial insemination, and did not appeal from a declaratory judgment wherein the question of legitimacy was determined. The court on appeal held that since the child was not represented in the legitimacy proceedings, the child was not bound by the adverse judgment determining him to be illegitimate. The appeal was dismissed. In a similar New York case, *Strnad* v. *Strnad*, a child resulting from AID, which had been performed with the consent of the husband, was held not to be illegitimate and the husband was given the right of visitation. It was stated, as dictum, in a Canadian divorce case that artificial insemination, without the consent of the husband, is adultery on the part of the wife.

The problems of legitimacy, inheritance, etc., primarily concern the parents and the offspring rather than the physician who performs the artificial insemination. The performance of artificial insemination does, however, create hazards for the physician which necessitate an adequate agreement between him and his patient. As is the case with other medical procedures, the physician cannot free himself from the obligation to use due care and skill in the performance of the procedure itself. The agreement with the parties should cover the points set forth below. 1. The wife should consent in writing to the procedure because otherwise its accomplishment would constitute an assault and battery. 2. The written consent of the husband should be obtained because the procedure seriously affects and involves the marital relationship. 3. The donor should consent in writing to the unrestricted use of the semen he supplies and should certify that he will make no effort to ascertain the identity of the husband and wife involved. 4. Although the possibility of suit by her is remote, the written consent of the donor's wife to the giving of the semen may also be desirable inasmuch as her marital interests are affected. 5. The physician should have permission to use his own best judgment in selecting the outside donor. The law has not as yet delineated the responsibilities of the physician on this score, but it would seem that he would be obligated to use reasonable care in selecting a healthy donor, who has no knowable transmissible disease. There are certain other desirable precautions which the physician should observe. The physician should establish to his own satisfaction that, from the medical point of view, the husband is sterile. Where possible, the semen used should be "pooled" and include semen of husband and donor. The use of such "pooled" specimen would give rise to the legal possibility that the husband was the father, or at least it would make it more difficult to prove that he was not the father where the donor is of the same blood group. The physician should make certain that the identity of the donor is kept from the husband and wife and their identity kept from the donor. However, the physician should have a record, preferably in code form and open only to himself, of the identities of the donor and the husband and wife, in the event that such information later becomes necessary in defending litigation.

It cannot be too strongly emphasized that obtaining the consent and observing the precautions mentioned above may have a bearing only upon the physician's civil responsibilities. No court decisions and no statutes have as yet spelled out any criminal aspects of artificial insemination. If the procedure should be held to be a criminal offense, in all probability it would be the physician, rather than the donor, who would be regarded as the guilty party. The donor has no control over the use of the semen; it is the physician who, by his own voluntary act, has actually interfered with the wife's reproductive faculties and caused the birth of any child that may result. If the performance of artificial insemination should be held to be a criminal offense, the fact that the patient consented may not be a defense to the physician. It has generally been held that consent to perform a criminal act is a nullity.

Since neither the courts nor the legislatures have as yet spelled out the physician's civil or criminal position with respect to the performance of artificial insemination, he should be insistent upon the greatest protection possible and should preserve adequate records in the event that any difficulties arise.

FORM 1.—*Agreement for Artificial Insemination*

The undersigned,..............................., and..........................., both being of legal age, represent that they were married on ....19.........., at.., and that they have continuously cohabited together as husband and wife since the aforementioned date. The undersigned request and authorize Dr..., and such assistants as he may designate, to inseminate the wife, artificially, subject to the following conditions and agreements.

1. The insemination may be repeated at times recommended by the physician until the wife becomes pregnant.

2a. The physician shall use only semen collected from the husband.

2b. The physician shall use pooled semen from the husband and a donor or donors whose name or names shall not be required to be disclosed to the husband and the wife.

2c. The physician shall use the semen of a donor or donors whose name or names shall not be required to be disclosed to the husband and the wife.

3. The husband and the wife agree to cooperate fully with the physician in all phases of this procedure and never to seek to discover the identity of any unknown donor or donors.

4. The husband and the wife have been fully informed by the physician of the hazards, risks and possible consequences involved, and nevertheless, individually and jointly agree to hold the physician and such assistants whose services he may utilize, and the donor or donors, free and harmless for any claims, demands, or suits for damages for any injury or complications whatever which may result directly or indirectly from any treatment or artificial insemination performed pursuant to this agreement.

Signed..(husband)

Signed..(wife)

Date......................................

Accepted:

Signed..M.D.

Witness..

Note. Use the applicable paragraphs under 2. Paragraphs 3 and 4 would also be altered in cases where the husband is the donor.

FORM 2.—*Application to Serve as a Donor of Semen*

Date......................................

To Dr..:

1. I hereby offer my services as a donor of semen with the understanding that if I am accepted to serve in this capacity you shall not reveal my identity to any recipient nor shall the identity of any recipient be disclosed to me, except as may be required by legal or judicial process.

2. I represent that to the best of my knowledge and belief I was born of exclusively..
(Caucasian, Negroid, etc.)
ancestry, that my religion is..,
and that the nationality of my ancestry is predominantly

....

3. I represent that I am in good health, that I have no communicable disease, that I am not now nor have I ever suffered from any physical impairment or disability, whether inherited or as a result of any disease or ailment, except as follows:..

....

4. I represent that I am not now nor have I ever been afflicted with syphilis or any other venereal disease, nor any mental ailment or emotional disturbance, except as follows:

....

....

5. I represent further that none of my grandparents, parents, brothers, or sisters, if any, children, if any, nor their lineal descendants have, to the best of my knowledge and belief, ever been afflicted with insanity or mental illness or any inherited physical disabilities or disease, except as follows:

....

....

6. For the purpose of determining whether I am acceptable as a donor of semen, I hereby consent to a physical examination of myself by you or any other physician whom you may designate, and the taking of blood and other body fluids as may be required for laboratory examination.

I HEREBY SWEAR THAT ALL OF THE REPRESENTATIONS MADE BY ME IN THE FOREGOING PARAGRAPHS ARE TRUE AND CORRECT.

Signed..

Witness..

FORM 3.—*Consent of Wife of Donor*

To Dr..:

1. I have read the above application to serve as a donor of semen which my husband has executed, and to the best of my knowledge and belief the representations therein contained are true and correct.

2. I understand that if my husband is accepted by you as a donor, it is your intention to use such semen for purposes of artificial insemination, but *not* with respect to myself.

3. I understand further that artificial insemination is a medical procedure intended to cause pregnancy of a woman through the use of semen introduced by means other than sexual intercourse.

4. Knowing full well that in serving as a donor of semen, my husband may become the father of a child or children of which I am *not* the mother, I nevertheless consent to the performance of such services by him.

5. To induce you to accept my husband's services as a donor of semen, I agree that I shall neither directly nor indirectly attempt to discover the identity of any recipient, and I further agree not to bring any action in law or in equity, or otherwise, against you or my husband as a consequence of any services which my husband may render as a donor of semen.

THIS CONSENT AND THE AGREEMENTS THEREIN CONTAINED ARE GIVEN FREELY AND VOLUNTARILY.

Signed..

Witness..

MEDICAL NEWS

CALIFORNIA

State Medical Election.—The following officers of the California Medical Association have been installed: president, Dr. Frank A. MacDonald, Sacramento; president-elect, Dr. Francis E. West, San Diego; secretary, Dr. Albert C. Daniels, San Francisco; and editor, Dr. Dwight L. Wilbur, San Francisco.

Appoint Director of Medical Education.—St. Mary's Hospital, San Francisco, has appointed a full-time director of medical education to supervise the intern-resident training program and the program of staff education. He is Dr. George H. Reifenstein, who completed his duties as chief of cardiology, U. S. Naval Hospital, Oakland, Sept. 1. Dr. Reifenstein is a diplomate of the American Board of Pathology and the American Board of Internal Medicine. The purpose of employing a full-time director of medical education is to continue to improve the program which St. Mary's has established and which has helped to maintain more than its full complement of internes and residents.

Dr. John B. de C. M. Saunders, dean, University of California Medical School, San Francisco, will continue his lectures in anatomy, and Harold Harper, Ph.D., consultant in biochemistry at St. Mary's, will continue his lectures in basic biochemistry as applied to medicine.

GEORGIA

Appoint Mental Hygiene Director.—Dr. Trawick H. Stubbs has been appointed director of the mental hygiene division, Georgia Department of Public Health. Dr. Stubbs earned a master of public health degree from the Harvard School of Public Health, Boston. He has served as a regular officer with the U. S. Public Health Service, as associate professor of preventive medicine, and assistant dean, Emory Medical School, Atlanta, and as dean of the University of Missouri Medical School, Columbia. He is also former assistant director of the Rhode Island Department of Social Welfare. His work in Georgia will involve development of an intensive treatment program for the mentally ill through the general hospitals in the state. Governor Marvin Griffin recently appropriated $75,000 per quarter to begin a screening and short-term treatment program for the mentally ill of moderate means to help relieve the patient load of Milledgeville Hospital.

ILLINOIS

Chicago

Personal.—Dr. G. Howard Gowen, who for many years has been deputy director of the Division of Hospitals and Chronic Illness for the Illinois State Department of Health, has resigned to become chief of the Division of Health and Welfare in the U. S. Operations Mission in Santiago, Chile.

Research Grants Available.—The Chicago Heart Association has announced the availability of grants-in-aid made for the fiscal year, July 1 to June 30 inclusive, which may be renewed upon application and annual review, if funds are available. Any established researcher in the Chicago area connected with a reputable research institute is eligible provided his research is related to the heart. Completed applications are due Nov. 1 to be effective July 1. For information write the Chicago Heart Association, 69 West Washington St., Chicago 2, Ill.

Dr. Thorek Honored.—Dr. Max Thorek, founder of the International College of Surgeons, has been honored by the French government with the award of Commander of the Legion of Honor for his contributions to surgery and his work in the formation and growth of the college, "creating a better understanding and scientific cooperation among surgeons of the world."

Dr. Thorek founded the International College of Surgeons 22 years ago at Geneva, Switzerland. Since then it has established chapters in 42 countries, excluding Russia and its satellites, and has a membership of 12,000 surgeons. Dr. Thorek serves as secretary-general of the college and as editor of its journal.

INDIANA

State Medical Association Meeting.—The 108th annual convention of the Indiana State Medical Association will be held Oct. 6-9 in the French Lick-Sheraton Hotel, French Lick. A panel discussion, "What's New—Important Developments," will be conducted by Dr. Walter L. Portteus, Franklin. Dr. Elton R. Clarke, Kokomo, president of the association, will present an address at the president's dinner. The program includes the following topics by out-of-state speakers:

Work Classification of the Cardiac, Dr. Herman K. Hellerstein, Cleveland.
Office Gynecology, Dr. William J. Dieckmann, Chicago.
The Prediction and Prevention of Coronary Heart Disease, Dr. John W. Gofman, Berkeley, Calif.
Surgical Management of Benign Conditions of the Large Bowel, Dr. Henry K. Ransom, Ann Arbor, Mich.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Medical Management of Benign Lesions of the Large Intestine, Dr. J. Arnold Bargen, Rochester, Minn.
Electrocardiogram in Coronary Disease, Dr. George E. Burch, New Orleans.
Epidemiology of Influenza, Dr. Fred M. Davenport, Ann Arbor.
Medical Problems in Disaster Management, Col. Joseph R. Shaeffer, M.C., Washington, D. C.
Tumors and Cysts of the Head and Neck, Dr. Albert C. Furstenberg, Ann Arbor.
Modern Physiological Concepts in the Therapy of Pregnancy Toxemia, Dr. Milton L. McCall, New Orleans.

Dr. Virginia Apgar, New York City, will speak at the luncheon meeting. Scientific and technical exhibits are scheduled, and a special ladies' program is planned. Entertainment includes the president's reception, Oct. 9. For information write the Indiana State Medical Association, 1021 Hume Mansur Building, Indianapolis 4, Ind.

Society News.—The following officers of the Indiana Academy of General Practice have been installed: Dr. James L. Lamey, president, Anderson; Dr. Floyd A. Boyer, president-elect, Indianapolis; Dr. Edward C. Voges, vice-president, Terre Haute; Dr. Frances T. Brown, treasurer, Indianapolis.

KANSAS

Clendening Lectureship.—Dr. Ralph H. Major, professor emeritus of the history of medicine, University of Kansas School of Medicine, Kansas City, presented the eighth course in the series of the Clendening lectureship at the university recently on "Disease and Destiny" and "Logan Clendening." The lectureship was established in 1949, by Mrs. Clendening in memory of her husband the late Dr. Logan Clendening.

School Health Symposium.—The University of Kansas Medical School in cooperation with the School of Education of the University of Kansas will hold its third annual symposium on school health Oct. 10. A panel discussion, "Effective Cooperation for School Health: The Physician and the Educator," will be moderated by Fred V. Hein, Ph.D., consultant in health and fitness, American Medical Association, Chicago. The program includes the following topics and speakers:

The Physician Views School Health, Dr. Conrad M. Barnes, chairman, committee on school health, Kansas State Medical Society.
What Young People Are Like; What Young People's Needs Are; What Methods Work with Young People; What Young People Want to Know About, Dr. J. Roswell Gallagher, chief, adolescent unit Children's Medical Center, Boston.
Health Teaching in Today's Schools, Dr. Hein.
Meeting the School and Health Needs of the Adolescent, Dr. Gallagher.

Discussion groups including physicians, school representatives, and industrialists are scheduled. Luncheon speaker will be Dr. E. Ungerleider, director of medical research, Equitable Life Insurance Society of the United States. For information write University of Kansas Medical Center, Rainbow Boulevard at 39th Street, Kansas City 12, Kan.

MICHIGAN

Society News.—Newly elected officers of the Detroit Roentgen Ray and Radium Society are: president, Dr. W. George Belanger; vice-president, Dr. Ivor D. Harris; and secretary-treasurer, Dr. Joseph O. Reed Jr., 3825 Brush St., Detroit.

Personal.—Dr. Henry K. Ransom, a native of Jackson, has been named acting chairman of the surgery department, University of Michigan Medical School, Ann Arbor, following announcement of the retirement of Dr. Frederick A. Coller, chairman of the department for 27 years. Dr. Ransom was promoted to professor of surgery in 1950 and since has worked under Dr. Coller. Since 1934 Dr. Ransom has been visiting surgeon at St. Joseph Mercy Hospital in Ann Arbor.——Walter L. Mallmann, Ph.D., professor of microbiology and public health at Michigan State University, will make a study in the eastern Mediterranean countries for the World Health Organization. Professor Mallmann will survey the food in the countries from a public-health aspect. Besides his three-month study, he will also visit various laboratories in Europe.

NEBRASKA

Personal.—Dr. Harle V. Barrett has been appointed acting director, department of preventive medicine and public health, Creighton University School of Medicine, Omaha, in the rank of assistant professor. Dr. Barrett is certified by the American Board of Preventive Medicine. His teaching experience includes Oklahoma Baptist University, Kansas State College, St. Joseph's School of Nursing in Ponca City, Oklahoma, and the University of Oklahoma School of Medicine, Oklahoma City. He has served as preventive medicine officer at Fort Ord, Calif. Pusan, Korea, and Fort Sill, Okla.

Dr. Walske Appointed Acting Director.—Dr. Benedict R. Walske has been appointed associate professor of surgery and named acting director, department of surgery, and head of the surgical specialties of the Creighton University School of Medicine, Omaha, replacing Dr. Harry H. McCarthy, who will devote more of his time to private practice and research. Dr. Walske has been chief of the surgical services at the Veterans Administration Hospital in Lincoln since 1951. He is certified by the American Board of Surgery and the American Board of Thoracic Surgery. He is a member of the American College of Surgeons, the American College of Chest Physicians, and the Lancaster County Medical Society.

NEW YORK

Cardiovascular Research Project.—A study of the relationship between hardening of the arteries in the heart in the human being and his living activities and other environmental factors is being developed in the Albany area is a cooperative venture of the State Health Department and Albany Medical College. It is based on a pilot study made last year by Dr. William G. Beadenkopf, assistant director of the Bureau of Epidemiology and Communicable Disease Control of the State Health Department, and Dr. Assaad Daoud, assistant professor of pathology, Albany Medical College.

The degree of atherosclerosis in all adults on whom autopsies are performed at Albany Hospital will be determined, then information will be sought on the way of life—habits of eating, drinking, working, and recreation—of each person autopsied. More than 1,600 individuals will be included in the study. The State Health Department has contracted with the college for the expenditure of $56,500 for the study during the coming year.

General Practitioners Scientific Assembly.—The ninth annual scientific assembly of the New York State Academy of General Practitioners will be held Oct. 21-23 at the Barbizon-Plaza Hotel, New York City. An address will be given by Dr. Richard P. Bellaire, president of the academy. The program will include the following topics and moderators:

Atomic Medicine, Dr. Joe W. Howland, Rochester.
Geriatric Problems, Dr. Benjamin Boshes, Chicago;
Teaching Symposium on Dislocations and Fractures (Closed TV Circuit), Drs. Samuel A. Garlan and Jeff J. Coletti;
Newer Chemotherapeutic Aids in Nervous and Mental Disorders, Dr. Harold W. Lovell, New York;
Obstetrical Program for the GP, Dr. Gordon W. Douglas, New York City.

Audience participation discussions will follow morning and afternoon sessions. Dr. G. Gordon Bell, director of the Bell Clinic, Willowdale, Ontario, Canada, will speak on alcoholic disorders, Oct. 23. Following the formal program, special visits to the Institute for Rehabilitation Medicine and the Brookhaven Institute and Atomic Research Laboratory at Long Island are scheduled. For information write the New York State Academy of General Practitioners, 84 Main St., Binghamton, N. Y.

Poison Control Centers.—Wallet-sized cards giving the location and telephone number of each of the five poison control centers in New York State are being distributed to each physician in Upstate New York. Dr. Herman E. Hilleboe, state health commissioner, has pointed out that about 1500 deaths occur from accidental poisoning each year in the United States. Of these, one-third occur in children under 5 years of age. Because of the hundreds of new medicinal and household products appearing on the market each year, a network of five poison control centers has been established with the assistance of the New York State Health Department. The centers answer inquiries from physicians concerning the ingredients of drugs and household supplies and advise on appropriate treatment methods. Twenty-four hour emergency service is available. Only emergency advice is given in answer to inquiries from the general public, with the suggestion that a physician be called at once. The centers are located at Albany Hospital, Albany; Children's Hospital, Buffalo; Strong Memorial Hospital, Rochester; City Hospital, Syracuse; and the New York City Health Department.

Personal.—Dr. John C. McClintock, associate professor of surgery, Albany Medical College, has received an invitation to create and display a scientific exhibit on thyroid cancer at the seventh annual International Cancer Congress in London, England, next summer. The congress, which is held under the auspices of the International Union Against Cancer, will be staged in London's Royal Festival Hall July 6-12, 1958.——Dr. William S. McCann, emeritus Dewey Professor of Medicine, University of Rochester School of Medicine and Dentistry has been named a visiting professor at the Sloan Institute of Hospital Administration, Cornell University, Ithaca.

Symposium on Diabetes.—"Fat and Diabetes" will be the topic of the fifth Symposium Day on Diabetes Mellitus to be held Oct. 12th in New York City at the Hunter College Playhouse Auditorium. The symposium is sponsored by the Clinical Society of the New York Diabetes Association, and *advance registration is required* for admittance. Out-of-state speakers include the following: Dr. William C. Stadie, University of Pennsylvania; Dr. Marvin D. Siperstein, University of Texas Southwestern Medical School; Drs. Margaret J. Albrink and Evelyn Man, Ph.D., Yale University School of Medicine; Dr. Robert E. Olson, University of Pittsburgh; Dr. Franz X. Hausberger, Jefferson Medical College; and Dr. Stanley Hartroft, Washington University. For information write the New York Diabetes Association, 104 E. 40th St., New York City 16.

New York City

Appoint Dean of Medical College.—Dr. Robert A. Moore, vice chancellor of the health professions at the University of Pittsburgh, has been appointed president of the Downstate Medical Center of the State University of New York and dean of the Center's College of Medicine, succeeding Dr. Howard W. Potter, who will retire. Dr. Moore has served on the faculty of Ohio State University, Western Reserve University, Cornell University and Washington University, St. Louis, where he was dean of the School of Medicine for seven years. He is a member of the National Advisory Cancer Council of the U. S. Public Health Service, a trustee of the China

Medical Board of New York, and immediate past-president and executive council member of the Association of American Medical Colleges. He has served as president of the American Association of Pathologists and Bacteriologists and of the Gerontological Society.

Compensation Medicine Program.—New aspects of health problems intensified by modern living will be presented at a one-week program, "Medical Aspects of Workmen's Compensation," to be offered Oct. 21-25 by New York University Post-Graduate Medical School and the American Academy of Compensation Medicine. Ten sessions covering the field of compensation medicine will be given by the department of industrial medicine. Problems facing physicians dealing with compensation medicine will be covered, including "The Heart in Industry"; "Medical Problems of the Older Worker"; "Tranquilizers and the Worker"; and "Radiation." Tranquilizers will be considered in the broadest sense as they affect industrial workers, white-collar employees, and the automobile driver. There will be a morning and afternoon session each day of the course which may be taken in its entirety or by individual session. For application and information write Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Ave., New York City.

Dr. Rush Appointed to Chair in Physical Medicine.—A chair for the department of physical medicine and rehabilitation of New York University College of Medicine has been created through a gift of $500,000 by the late Louis J. Horowitz, honorary trustee of New York University-Bellevue Medical Center and an original founder of the Institute of Physical Medicine and Rehabilitation. The first incumbent, for which the chair was designated and named, will be Dr. Howard A. Rusk, chairman of the department and director of the institute. In addition to the endowed chair, funds will be used to subsidize those patients who are unable to meet the cost of their care and to provide fellowship training for personnel in the rehabilitation specialties. Dr. Rusk, organized the department of physical medicine and rehabilitation in 1948.

NORTH CAROLINA

Appoint Chairman of Biochemistry Department.—J. Logan Irvin, Ph.D., has assumed the chairmanship of the department of biochemistry and nutrition, University of North Carolina School of Medicine, Chapel Hill. At the same time Dr. Irvin, who has been a member of the faculty since 1950, was promoted from associate professor to professor. Dr. Irvin returned to the university last September after completing nine months of research at the National Institutes of Health at Bethesda, Md., on the biosynthesis of proteins and nucleic acids of normal liver and liver tumors, supported by a Guggenheim Foundation fellowship. Previously he was on the faculty of the Johns Hopkins School of Medicine, Baltimore, for nine years. He is a member of the American Chemical Society, the Society of Experimental Biology and Medicine. and the American Society of Biological Chemists.

OHIO

Society News.—The Cleveland Radiological Society recently elected the following officers for 1957-58: president, Dr. Delbert A. Russell; vice-president, Dr. Thomas Knickerbocker; and secretary-treasurer, Dr. Frederick A. Rose. 2065 Adelbert Road, Cleveland 6.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Philip S. Barba, associate professor of pediatrics, Graduate School of Medicine, University of Pennsylvania, has been appointed to serve on the President's Citizens Advisory Committee on the Fitness of American Youth.——Dr. James L. A. Roth, associate professor of physiology and gastroenterology, University of Pennsylvania Graduate School of Medicine, received an honorary degree of doctor of science at the recent commencement exercises of Carthage College, Carthage, Ill.

TEXAS

Society News.—Dr. Jacobus D. McCulley, Houston, was recently elected president of the Texas Society of Anesthesiologists. Other officers include Dr. Milton M. Rosenzweig, San Antonio, president-elect; Dr. David O. Johnson, Austin, vice-president; Dr. Randle J. Brady, Houston, secretary-treasurer; and Dr. Lawrence W. Schuhmacher, Houston, program chairman.——Dr. Truman G. Blocker Jr., Galveston, was recently elected president of the Texas Society of Plastic Surgeons. Other officers are Dr. Sidney Hardy, Houston, vice-president, and Dr. Steve R. Lewis, Galveston, secretary-treasurer.

Division of Medical Sociology.—A division of medical sociology has been established in the department of preventive medicine and public health, University of Texas Medical Branch, Galveston. In addition to conducting research and teaching in the realm of socio-environmental aspects of health and illness, the division operates jointly in such specialties as psychiatry, nursing and medical education, and administration. Research projects in areas such as industrial health, social epidemiology of mental disorders, tuberculosis, and alcoholism are currently under way. E. Gartley Jaco, Ph.D., will serve as director, with the initial staff composed of Norman G. Hawkins, Ph.D., and Sam Schulman, Ph.D., as assistant professors of medical sociology.

WASHINGTON

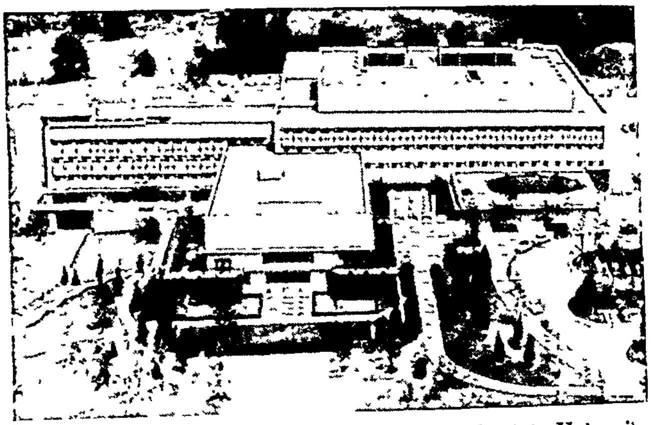
Appoint Radiology Department Head.—Appointment of Dr. Melvin M. Figley as head of the University of Washington Medical School's department of radiology has been approved by the board of regents. The regents also reestablished a department of oral pathology in the School of Dentistry. Dr. Figley will be the first permanent head of the radiology department. His appointment is effective June 1, 1958. Currently an assistant professor of radiology at the University of Michigan, he is also a consultant at the Ann Arbor Veterans' Administration Hospital. He has been a member of the Michigan faculty since 1950. Dr. Figley holds a five-year $30,000 Markle Foundation fellowship, and this year he was awarded research grants by the Michigan and American Heart associations. His research interests lie in the field of angiography.

Annual Symposium on Heart Disease.—The ninth annual symposium on heart disease, sponsored by the Washington State Heart Association and the Washington State Department of Health, will be held at the University of Washington Medical School Auditorium Oct. 4-5. Speakers include Dr. Herman Hellerstein, Cleveland; Dr. Robert P. Grant, Bethesda, Md.; Henry Longstreet Taylor, Ph.D., Minneapolis; Dr. Julius H. Comroe Jr., Philadelphia; and Dr. Paul Dudley White, Boston. Themes of the symposium will be "Changing Attitudes About Coronary Disease" and "Disorders of the Heart and Lungs." The speakers will also conduct panel sessions and discuss questions from the audience. For information write Dr. Robert A. Bruce, Chairman, Annual Symposium, Planning Committee, 3121 Arcade Building, Seattle 1, Wash.

WEST VIRGINIA

State Medical Election.—The following officers of the West Virginia State Medical Association have been elected for 1957-1958: president, Dr. Charles A. Hoffman, Huntington; president-elect, Dr. George F. Evans, Clarksburg; vice-president, Dr. Jacob C. Huffman, Buckhannon; treasurer, Dr. Thomas Maxfield Barber, Charleston (reelected). The 91st annual meeting of the association will be held at The Greenbrier, White Sulphur Springs, Aug. 21-23, 1958.

Dedicate Basic Sciences Building.—The Basic Sciences building of the West Virginia Medical Center, Morgantown, will be dedicated Oct. 5. Principal speaker at the ceremony will be Dr. William S. Middleton, chief medical director for the Veteran's Administration and former dean of the University of Wisconsin School of Medicine. The building is the second unit in the center constructed toward the expansion of the present two-year school to a four-year medical program and development of schools of nursing and dentistry. The College of Pharmacy will move from the university campus to the medical center. The basic sciences building consists of a central core, measuring 225 by 225 feet with five wings extending an additional 100 feet to the north, east, and west. The core is five stories high and contains lecture rooms, laboratories, and other teaching facilities. Located on the second, third and fourth floors are facilities for teaching anatomy, biochemistry, microbiology, pathology, pharmacology, physiology, and public health and preventive medicine, plus specialized research equipment. The School of Dentistry occupies the first floor of the core. The wings contain the schools of nursing and pharmacy and the administrative offices, the library, main auditorium, and a lounge, lockers, post office, bookstore, and food services. Construction of the 500-bed teaching hospital, which will be connected to the basic sciences building, is underway, and completion is scheduled within three years.



New Basic Sciences Building at West Virginia University, Morgantown.

GENERAL

Coronary Heart Disease.—The Metropolitan Life Insurance Company Information Service has reported that coronary heart disease, "the commonest form of heart disease today," is least frequent among young married women, among persons living in the rural part of the southern states, and among those who have had no history of premature death or occurrence of heart disease in the family. A study of recorded mortality from heart disease by statisticians of the insurance company reveals variations according to age, sex, weight, race, marital status, geographic region, and other factors. Up to age 45, the death rate from heart disease runs up to 6.6 times as high for white men as for white women. The ratio decreases progressively with advance in age, until at age 85 and over the rates for the two sexes among white persons are about the same. Among nonwhites the sex differences in the death rate are much smaller and do not vary much with age. Heart disease death rates are significantly higher for the widowed, the single, and the divorced than for the married. Studies have shown that people who are overweight are more likely to suffer fatal attacks of heart disease. When overweight is coupled with slight or moderate elevation of blood pressure, the chances of such an attack are greatly increased. The heart disease death rate is lowest in the east south central region and highest in the middle Atlantic region.

Public Health Development Program.—The American Public Health Association is initiating a long-range technical development program to help communities with new and changing health problems. According to Dr. Reginald M. Atwater, executive secretary of the association, in some important areas of public health methods and standards have remained virtually unchanged "since the horse-and-buggy era." Initial concentration will be in eight areas: radiological health, accident prevention, mental health, chronic disease and rehabilitation, child health, environmental health, medical care administration, and public health administration. A committee of experts in each area will develop policy statements, write operating manuals, conduct field studies, surveys, and demonstrations, and consult with state and local health authorities and agencies. To coordinate the program a technical development board has been appointed. Chairman is Dr. Martha M. Eliot, former chief of the U. S. Children's Bureau and now professor of maternal and child health at the Harvard School of Public Health, Boston. Initiation of the technical development program is the first step in a three-year expansion and reorganization program for the 85-year-old professional society. The total program will require a $250,000 increase in annual operating budget, to be reached by 1960. The Rockefeller Foundation has made a grant of $150,000 to help finance new activities during the developmental period.

International Seminars in Mental Health.—The Postgraduate Center for Psychotherapy, New York City, will initiate a series of international seminars in the field of mental health by presenting Dr. W. Grey Walter, British neurophysiologist, who will speak on "Brain Behavior," at an open meeting at the New York Academy of Medicine at 8:00 p. m., Oct. 23 Dr. Walter will lead two other seminars, on Oct. 20 and 31, respectively, when the subjects will be "The Physiology of Personality" and "The Cybernetic Approach to Mentality and Society." At the third meeting he will demonstrate his "electronic turtle," one of the models he designed and built for the study of nerve mechanisms. The international seminars of the Postgraduate Center for Psychotherapy have been established under a grant by the Samuel Rubin Foundation. They will be presented semi-annually for the purpose of providing a platform in the United States for outstanding scientists from abroad who can present new ideas and approaches which may be integrated into the field of psychotherapy. The siminars will be presented with the assistance of an International Advisory Council. This program has been given formal sponsorship by the World Federation for Mental Health. The post-graduate center is a nonprofit organization dedicated to a four-fold program in mental health: to conduct clinics; provide out-patient psychotherapeutic services for some 700 children and adults who cannot afford private psychiatric fees; to serve as an advanced training center for psychotherapists; and to carry on intensive research programs in a continuing effort to develop better and shorter education programs.

Music Therapy Association.—The eighth annual conference of the National Association for Music Therapy, Inc., will be held Oct. 10-12 at the Kellogg Center for Continuing Education, Michigan State University, East Lansing. The agenda includes new music therapy techniques; relation between music therapy and special education; present status of music therapy in psychiatry; reports of current research; and music therapy as a developmental need for children. Registration fee is $6. Entertainment includes a concert by the Michigan State University Faculty Chamber Orchestra and a banquet Oct. 11. For information write the Kellogg Center for Continuing Education, Michigan State University, East Lansing, Mich.

Food and Nutrition Reprints.—The Council on Foods and Nutrition regrets that the cards requesting reprints from the Annual Meeting of the American Medical Association were lost in transit from New York and have not been located. Upon request, the Council will be glad to furnish a list of its available publications.

Hospital Association Meeting in Atlantic City.—The 59th annual conference of the American Hospital Association will be held Sept. 30-Oct. 3 in Atlantic City, N. J. Dr. Albert W. Snoke, president of the association and Mr. James D. Dyett, president of the Hospital Industries' Association, Buffalo, N. Y., will present addresses Sept. 30. A conference on hospital planning, "New Trends in Hospital Services," will be presented Sept. 30, with Dr. David B. Wilson as chairman.

Topics to be discussed in the general assembly are: education in the nation, an informed public, the nation's health. voluntary health care and government, and the future of hospitals. Technical exhibits are planned. A luncheon for international guests will be held Sept. 30. Round-table sessions will be conducted each afternoon. Entertainment includes the president's reception Sept. 30 and the banquet Oct. 2, at which the distinguished service award will be presented to Mr. John H. Hayes, hospital consultant, Douglaston. L. I., N. Y. For information write the American Hospital Association, 18 East Division St., Chicago 10, Ill.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Aug. 31, 1957		Sept. 1, 1956
	Paralytic Type	Total Cases	Total Cases
New England States			
Maine	...	...	2
New Hampshire	...	...	...
Vermont	...	1	1
Massachusetts	...	...	6
Rhode Island	...	...	...
Connecticut	1	6	5
Middle Atlantic States			
New York	6	19	44
New Jersey	2	8	17
Pennsylvania	...	4	8
East North Central States			
Ohio	1	16	46
Indiana	3	6	39
Illinois	5	31	120
Michigan	7	47	51
Wisconsin	1	20	43
West North Central States			
Minnesota	1	1	26
Iowa	...	2	84
Missouri	2	11	33
North Dakota	...	3	1
South Dakota	...	...	2
Nebraska	1	3	7
Kansas	...	1	11
South Atlantic States			
Delaware	...	...	2
Maryland	...	...	5
District of Columbia	6	6	1
Virginia	1	3	31
West Virginia	2	2	5
North Carolina	1	6	24
South Carolina	1	1	7
Georgia	2	2	10
Florida	...	1	6
East South Central States			
Kentucky	3	7	11
Tennessee	3	8	8
Alabama	...	...	4
Mississippi	...	1	13
West South Central States			
Arkansas	1	1	25
Louisiana	8	12	17
Oklahoma	...	2	6
Texas	...	...	40
Mountain States			
Montana	2	2	2
Idaho	...	...	7
Wyoming	...	1	...
Colorado	1	1	15
New Mexico	...	1	8
Arizona	...	1	1
Utah	...	...	11
Nevada	...	...	...
Pacific States			
Washington	...	...	11
Oregon	...	...	4
California	9	20	63
Territories and Possessions			
Alaska	...	...	1
Hawaii	...	...	...
Puerto Rico	...	...	...
Total	70	257	889

Meeting on Psychosomatic Medicine.—The fourth annual meeting of the Academy of Psychosomatic Medicine will be held at the Morrison Hotel, Chicago, Oct. 17-19. Theme for the meeting will be "Psychosomatic Aspects of Obstetrics, Gynecology, and Endocrinology, Including Diseases of Metabolism." Foreign participants include Dr. Grantley Dick-Read, London, England; Dr. Bernard B. Raginsky, Quebec, Canada; and Dr. Carl W. R. Tupper, Nova Scotia, Canada. The program includes the following symposiums and moderators:

Psychosomatic Aspects of the Pre- and Postnatal Period, Dr. Edith P. Jackson, New Haven, Conn.

Psychosomatic Aspects of Pediatric Gynecology and Endocrinology, Dr. Goodrich C. Schauffler, Portland, Ore.

Psychologic Factors in Anesthesia, Dr. Raginsky.

Emotional Factors in Sterilization and Abortion (Spontaneous, Criminal, and Therapeutic), Dr. Flanders Dunbar, New York City.

Goals and Therapy in Psychosomatic Diseases, Dr. Dunbar.

A panel discussion, "Psychosomatic Infertility," moderated by Dr. M. Edward Davis, Chicago, will be held Oct. 18. Dr. Ethan Allan Brown, president of the academy, will present "Three Psyches, Two Somas" at the banquet Oct. 18. The fee is $10 for nonmembers. For information write Dr. William S. Kroger, Secretary, Academy of Psychosomatic Medicine, 104 S. Michigan Ave., Suite 415, Chicago 3, Ill.

Medical Meeting for Hunters.—The South Dakota State Medical Association is sponsoring a Hunter's Medical Meeting, Oct. 26-30, in Mitchell, S. D. The meeting is limited to 100 out-of-state doctors of medicine. Registration fee of $100 includes hunting license, hunting grounds, and guides, scientific sessions, and four dinners. If wives come with husbands and hunt, the registration fee is the same for each; if wives do not hunt, their registration fee is $75. A special motel has been reserved for out-of-state physicians. For information and registration blank, write Mr. John C. Foster, Executive Secretary, South Dakota State Medical Association, 300 First National Bank Building, Sioux Falls, S. D.

LATIN AMERICA

Medical School Teaching Program.—To continue the development of basic science teaching, the School of Medicine of the University of El Salvador, San Salvador, will supplement its staff and purchase further equipment for its departments of anatomy, biochemistry, microbiology, pathology, physiology, and preventive medicine. The Rockefeller Foundation has provided $171,000 for these purposes during the next year and a half. A teaching health center and out-patient facility adjoining the Medical School and its teaching hospital have been financed by the Ministry of Health, which is also providing the personnel needed to staff the center and to offer instruction in the fields of community health, nursing, and social services. Students receive basic training in such subjects as epidemiology and biostatistics in correlation with the associated basic sciences, and in their clinical years have practical training in public health and preventive medicine at the center and hospital. With support from the Salvadorian government, the Kellogg Foundation, the International Cooperation Administration, and private sources, the school has established a modern teaching center and has developed a trained group of academic personnel at both the basic and clinical science levels.

Three-Year Scholarship Grant.—The Pan American Medical Association announces a three-year medical scholarship to a Cuban physician to study internal medicine in the School of Medicine Wayne State University, Detroit. The recipient will be selected by a committee of five members of the Havana Chapter of the association, with Dr. Carlos F. Cardenas as chairman. The following stipulations are given: (1) the student-physician will be chosen on his record as a medical student and in his hospital internship of at least two years; (2) the candidate must speak English; (3) he must pledge to return to his country and practice medicine and to teach for at least ten years after completion of the scholarship. For information write Dr. Charles Pierre Mathé, Pan American Medical Association, 450 Sutter St., San Francisco 8, Cal.

Meeting of Pathologists in Mexico City.—The joint meeting of the American Society of Clinical Pathologists, Asociacion Mexicana de Patologos, and the College of American Pathologists will be held Oct. 7 at the Ciudad Universitaria. Addresses will be given by Dr. Raoul Fournier, dean, University of Mexico School of Medicine; Dr. Miguel Schulz, president, Asociacion Mexicana de Patologos; and Dr. Isaac Costero, honorary president, Sociadad Latino-Americana de Anatomo-Patologos. Responses will be given by Dr. W. A. D. Anderson, president, College of American Pathologists; Dr. John L. Goforth, president, American Society of Clinical Pathologists; and Dr. David A. Wood, president, American Cancer Society. The program includes the following presentations:

Cerebral Cysticercosis, by Drs. M. Schulz and F. Biagi, Pathology Unit, National University Medical School.

Amebiasis in Children, by Drs. M. Salas, K. Ambrosius and M. Esparza, Children's Hospital.

Cirrhosis of the Liver, by Dr. Ruy Perez Tomayo, Pathology Unit, National University Medical School.

Onchocercosis, by Dr. M. Martinez Baez, Tropical Diseases Institute.

Cerebral Lesions in Malaria, by Dr. I. Costero, National Heart Institute.

Tours of the campus of the university and of Mexico City are planned. For information write the College of American Pathologists, 2115 Prudential Plaza, Chicago 1, Ill.

FOREIGN

Congress on Wine and Alcohol.—The International Congress for Medicine will be held Oct. 11-13 at the Faculty of Medicine and Pharmacy, place de la Victoire, Bordeaux, France, under the presidency of Georges Portmann, honorary dean of the Faculty of Medicine and Pharmacy of Bordeaux. Problems to be considered are wine and health. The special reports will be accompanied by communications concerning the latest studies on the physiologic and microbicidal composition of various wines. Meetings will also take place in various viticultural regions of the district of the Gironde showing vineyards, vintage and the treatment of grapes. The organizing committee states that a large foreign participation is assured. Additional facultative trips to the southwest are planned. Entertainment includes a soiree at the Grand Theater of Bordeaux Oct. 11 and the official banquet in the castle of the Dukes of Epernon Oct. 12. For information write Secrétaire Général du Congrés, 36. Avenue d'Ares, Bordeaux, France.

CORRECTION

Dr. Walsh on President's Advisory Committee.—Through error, the name of Dr. William B. Walsh, internist, Washington, D. C., was not included in the listing of physician members of the Citizens' Advisory Committee to the President's Council on Youth Fitness, which was discussed in an editorial in The Journal, Sept. 7, page 54.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 17-19. Sec., Dr. D. G. Gill, State Office Building, Montgomery 4.

Arizona:* *Examination and Reciprocity.* Phoenix, Oct. 16-18. Exec. Sec., Mr. Robert Carpenter, 826 Security Bldg., Phoenix.

Arkansas:* *Examination and Reciprocity.* Little Rock, Nov. 7. Sec., Dr. Joe Verser, Harrisburg.

California: *Written Examination.* Sacramento, Oct. 21-24. *Oral Examination.* San Francisco, Nov. 16. *Oral and Clinical for Foreign Graduates.* San Francisco, Nov. 17. Sec., Dr. Louis E. Jones, 1020 N St., Sacramento 14.

Colorado:* *Reciprocity.* Denver, Oct. 8. *Examination.* Denver, Dec. 3-4. Exec. Sec., Mrs. Beulah H. Hudgens, 715 Republic Bldg., Denver 2.

Connecticut:* *Examination.* Hartford, Nov. 12-14. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic. Examination.* Derby, Sept. 10. Sec., Dr. Donald A. Davis, Derby.

Delaware: *Examination.* Dover, Jan. 14-16. *Reciprocity.* Dover, Jan. 23. Dr. Joseph S. McDaniel, Professional Bldg., Dover.

District of Columbia:° *Reciprocity.* Washington, Sept. 9. *Examination.* Washington, Nov. 12-13. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington, D. C.

Florida:° *Examination.* Miami, Nov. 24-26. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Georgia: *Examination.* Atlanta, Oct. 8-9. *Reciprocity.* Atlanta, Oct. 10. Sec., Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

Idaho: *Examination and Reciprocity.* Boise, Jan. 13-15. Ex. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Iowa:° *Examination.* Des Moines, Dec. 2-4. Exec. Sec., Mr. Donald V. Saf, State Office Building, Des Moines 19.

Kentucky: *Examination.* Louisville, Dec. 9-11. Sec., Dr. Russell E. Teague, 620 South Third St., Louisville 2.

Maine: *Examination.* Portland, Nov. 12-14. *Reciprocity.* Portland, Nov. 12. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Reciprocity.* Baltimore, September. *Examination.* Baltimore, Dec. 10-13. Sec., Dr. Frank K. Morris, 1211 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, Jan. 14-17. Sec., Dr. Robert C. Cochrane, 37 State House, Boston.

Michigan:° *Examination.* Lansing, Oct. 9-11. Exec. Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing 8.

Minnesota:° *Examination and Reciprocity.* Minneapolis, Oct. 15-17. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

Montana: *Examination and Reciprocity.* Helena, Oct. 1-2. Sec., Dr. Thomas L. Hawkins, 555 Fuller Ave., Helena.

Nebraska:° *Examination.* Omaha, June. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

New Hampshire: *Examination and Reciprocity.* Concord, Sept. 11-13. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, Oct. 15-18. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.

New Mexico:° *Examination and Reciprocity.* Santa Fe, Nov. 18-19. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York and Syracuse, Dec. 10-13. *Sec.*, Dr. Stiles D. Ezell, 23 South Pearl St., Albany 7.

North Carolina: *Endorsement.* Morehead City, Oct. 12. Asst. Sec., Mrs. Louise J. McNeill, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 9-12. *Reciprocity.* Grand Forks, Jan. 12. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Endorsement.* Columbus, Oct. 1. *Examination.* Columbus, Dec. 17-19. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oklahoma: *Examination.* Oklahoma City, Dec. 14-15. Sec., Dr. E. L. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon:° *Reciprocity and Endorsement.* Portland, Oct. 3-5. *Examination.* Portland, January. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Rhode Island:° *Examination.* Providence, Oct. 3-4. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, Dec. 10. Sec., Dr. H. E. Jarvey, Jr., 1329 Blanding St., Columbia.

South Dakota:° *Examination.* Sioux Falls, Jan. 21-22. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:° *Examination.* Memphis, Sept. 25-26. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

Texas:° *Examination and Reciprocity.* Fort Worth, Dec. 5-7. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July 9-11. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: *Reciprocity.* Richmond, Dec. 4. *Examination.* Richmond, Dec. 5-7. Address: Office of the Secretary, 631 First St., S.W., Roanoke.

Washington:° *Examination.* Seattle, Jan. 13-15. Sec., Mr. Thomas A. Carter, Capitol Bldg., Olympia.

West Virginia: *Reciprocity.* Charleston, Oct. 7. *Examination.* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:° *Reciprocity.* Madison, Oct. 18. *Examination.* Madison, January. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination and Reciprocity.* Cheyenne, Sept. 30, Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:° On application in Anchorage and Juneau. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: *Subject to Call.* Act. Sec., Dr. S. F. Provencher, Agana.

Hawaii: *Examination.* Honolulu, Jan. 13-14. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Virgin Islands: *Examination.* St. Thomas, Nov. 13. Sec., Dr. Earle M. Rice, Charlotte Amalie, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination.* Tucson, Sept. 17. *Reciprocity,* Tucson, Sept. 19. Sec., Mr. Herman E. Bateman, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, Oct. 7-8. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

Connecticut: *Examination.* New Haven, Oct. 12. Exec. Asst., Mrs. Regina G. Brown, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 21-22. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington, D. C.

Florida: *Examination.* Gainesville, Nov. 9. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Iowa: *Examination and Reciprocity.* Des Moines, Oct. 8. Sec., Dr. Elmer W. Hertel, Waverly.

Michigan: *Examination.* Ann Arbor and Detroit, Oct. 11-12. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., West Michigan Ave., Lansing.

Minnesota: *Examination.* Minneapolis, Oct. 1-2. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

New Mexico: *Reciprocity.* Santa Fe, Sept. 29. *Examination.* Santa Fe, Oct. 20. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination.* Oklahoma City, Sept. 27-28. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

South Dakota: *Examination.* Vermillion, Dec. 6-7. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Sept. 25-26. Sec., Dr. O. W. Hyman, 62 South Dunlap St., Memphis 3.

Texas: *Examination.* Austin, October. Chief Clerk, Miss Pearl A. Barrera, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Madison, Sept. 20 and Milwaukee, Dec. 7. Sec., Mr. William H. Barber, 621 Ransom St., Ripon.

°Basic Science Certificate required.

GOVERNMENT SERVICES

ARMY

Personal.—Dr. F. K. Mostofi has been appointed scientific director of the American Registry of Pathology of the Armed Forces Institute of Pathology, to succeed Dr. H. G. Grady, who resigned the post to become professor of pathology at the Seton Hall College of Medicine and Dentistry, Jersey City, N. J. Dr. Mostofi has been chief of the genitourinary section of the Armed Forces Institute of Pathology since August, 1948, a post which he will continue to hold in addition to his new appointment.

NAVY

Correspondence Course.—The correspondence course, Blood Transfusion, Methods and Procedures, NavPers 10998-1, a revision of the correspondence course, Special Clinical Services—Blood, NavPers 10998, is now available. Consisting of eight objective type assignments it is evaluated at 24 Naval Reserve promotion and nondisability retirement points. Since this is a minor revision of the former course, additional points will not be credited to Naval Reserve personnel who have previously completed the course, NavPers 10998. Applications for enrollment should be submitted on Form NavPers 992 (Rev. 2-56) and forwarded to the Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md., via the applicant's respective command.

Personal.—Capt. Edward C. Kenney, commanding officer of the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Md., has, since September, 1955, been elevated to the rank of rear admiral.

VETERANS ADMINISTRATION

Training in Occupational Therapy.—The Veterans Administration will accept an increasing number of students for training in occupational therapy, under the Physical Medicine and Rehabilitation Service, to help alleviate the national shortage in this field. The Veterans Administration has been training about 300 occupational therapy students at 17 hospitals each year. Admission of additional trainees to the hospital programs, on a "without compensation" basis, will enable the Veterans Administration to comply with recent requests from occupational therapy schools for affiliation with VA hospitals. These students will receive quarters and subsistence in return for their services, but they will not receive a stipend. Occupational therapy training in VA hospitals offers clinical experience in a variety of disease and disability categories.

Radioactive Counter.—A total body radioactivity counter has been designed and developed by Dr. Gerald J. Hine, a physicist in the radioisotope service of the VA Hospital in Boston. It is so sensitive that it can measure the tiny amounts of radioactivity naturally present in the human body. Physicians can study some functions inside the body by noting this radioactivity. The movements of radioactive tracers can be followed on the counter. Since the counter is extremely sensitive, only minute amounts of these tracers would have to be introduced into the body. This means that the patient can be studied longer with a smaller dose of an isotope than was possible before. The counter will be used to compare radioactive patterns in healthy people with those of patients with various diseases. Another advantage of the counter is that it can follow the actions of different radioactive isotopes involved in separate functions in the body simultaneously.

PUBLIC HEALTH SERVICE

Personal.—Dr. Otis L. Anderson, formerly chief of the Public Health Service Bureau of State Services, was assigned to the newly created post of assistant surgeon general for personnel and training. He was succeeded in the Bureau of State Services by Dr. David E. Price, formerly deputy chief of the Public Health Service Bureau of Medical Services. The changes become effective Oct. 1. The new position was established to provide as fully as possible for the development and utilization of Public Health Service Personnel.——Forrest J. Gerard, a member of the Blackfoot Indian tribe and former health association official in Montana and Wyoming, has been appointed Tribal Relations Officer of the U. S. Public Health Service Division of Indian Health, effective Sept. 3. In his new position, Mr. Gerard will be responsible for relations between some 250 Indian tribes and the federal government Indian health program.

DEPARTMENT OF COMMERCE

Radioisotope Techniques.—A radioisotope technique for determination of cardiac output which is said to offer virtually unlimited potential in the diagnosis and control of heart disease is described in a report (PB 121984 Blood Volume and Cardiac Output Determinations Using Radioisotopes, by R. E. Zipf, J. M. Webber, and G. R. Grove, Miami Valley Hospital, and T. F. McGuire, Wright Air Development Center. Nov., 1956. Price $1.00) of Air Force–sponsored research that is available through the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Simple and highly accurate, the technique can be used to demonstrate precisely the variations of cardiac output under stress and response to medications, and to measure the volume of whole blood, plasma, and erythrocytes.

DEATHS

Cohn, Alfred Einstein, member emeritus of the Rockefeller Institute in New York City, died at his home, Iron Hill Farm in New Milford, Conn., July 20, aged 78, of generalized arteriosclerosis and hypertension. Dr. Cohn was born in New York City April 16, 1879. He received his M.D. degree from Columbia University College of Physicians and Surgeons, New York City, 1904, and from 1907 to 1909 he studied in Germany, Austria, and England. While working in London with Sir James Mackenzie, he discovered the presystolic murmur. Later, working with Thomas Lewis, Dr. Cohn helped to set up the Einthoven string galvanometer for making electrocardiograms at University College in London. He returned to New York and practiced medicine for two years, serving as associate in pathology at Mount Sinai Hospital and an alumni fellow in pathology at Columbia. It was at Mount Sinai that he made his first electrocardiograms in the United States in 1910 and published a scientific paper on this work. In 1911 he joined the staff of the Rockefeller Institute, where he continued his research, bringing with him the galvanometer for making electrocardiograms; was associated with the Institute for 33 years, becoming a member in 1920, and retired in 1944. During World War I he served as a major in the Army Medical Reserve Corps with assignment to the Surgeon General's Office and also a lieutenant colonel in the American Expeditionary Forces as senior consultant on circulatory diseases. Between wars he served on the council of the Veterans Administration, holding his post until 1946. During World War II he was vice-president and later chairman of the executive committee of the Committee for National Morale, special advisor to the Board of Economic Warfare and a member of the Health Committee of the Office of Foreign Relief and Rehabilitation Operations. He was actively identified with many public health organizations in an executive capacity. Dr. Cohn served both as a member of the board of governors and chairman of the committee on research of the New York Heart Association for over 25 years and was on the board of governors of the New York Tuberculosis and Health Association. He was chairman of the scientific committee of the Research Council of Department of Hospitals of New York City and its treasurer from 1943 to 1951. He was a member of the advisory council of the Committee on Research in Medical Economics from 1936 to 1939, chairman of the Sub-committee on Heart Diseases and Rheumatic Fever for the 1939 New York World's Fair, and until his death, belonged to the Club for Research on Ageing. He served as a visiting professor in medicine at the Union Medical College in Peking, China, in 1925. He was on the executive committee, Group on Adult Education of the Carnegie Corporation and the Council of the American Association for Adult Education. From 1928 to 1940 he was a member of the Lasker Foundation and in 1930 was president of the Harvey Society. From 1930 to 1943 Dr. Cohn was a member of the committee on library of the New York Academy of Medicine and served as committee chairman from 1934 to 1941. He was on the board of governors of the Irvington House for the Care of Children with Heart Diseases and participated in planning its buildings. He served from 1933 to 1945 on the executive committee for Displaced Foreign Scholars and Displaced Foreign Physicians and from 1934 to 1945 was a member of the China Medical Board of the Rockefeller Foundation. Dr. Cohn also served as a director of the Student Service of America. From 1945 to 1947 he was a member and treasurer of the American Committee for Emigre Scholars, Writers and Artists. He was president of the School of Asiatic Studies for the Iranian Institute in New York from 1947 to 1949, having previously served on its board, was a resident member of the Council on Foreign Relations, a member of the board of the Sydenham Institution and a life member of the Metropolitan Museum of Art. Among the organizations to which Dr. Cohn belonged were: Association of American Physicians, American Society for Clinical Investigation, American Association of Anatomists, American Physiological Society, New York Academy of Sciences, American Association of the History of Medicine, and New York Academy of Medicine. He was an associate member of the American Medical Association. From 1924 to 1937 he was a member of the board of editors of *Journal of Clinical Investigation* and for eight years a member of the board of editors of the *Bulletin of the New York Academy of Medicine*. He was the author of four volumes: "Medicine, Science and Art: Studies in Interrelations," published in 1931; "Minerva's Progress," published in 1946; "No Retreat from Reason—and Other Essays," published in 1948; and "The Burden of Diseases in the United States," written with Claire Lingg and published in 1950. His alma mater honored him in 1940 by conferring the honorary doctor of science degree. Dr. Cohn's early investigations made fundamental contributions to the new technique of electrocardiography. It was through his endeavors that the classification of criteria of the diagnosis of various types of heart diseases was stimulated in this country.

♦ Indicates Member of the American Medical Association.

Lynch, Frederick James, Boston; born in Cambridge, Mass., Nov. 13, 1889; Harvard Medical School, Boston, 1919; specialist certified by the American Board of Obstetrics and Gynecology; member of the American Association of Obstetricians and Gynecologists of which he was at one time vice-president; past-president of the New England Obstetrical and Gynecological Society and the Boston Obstetrical Society; emeritus professor of obstetrics at Tufts College Medical School; at one time on the faculty of his alma mater; veteran of World War I; served on the staffs of the Cambridge City (Mass.) Hospital, Symmes Arlington Hospital, Arlington, Mass., Mount Auburn Hospital, Cambridge, Mass., Lawrence Memorial Hospital, Medford, Mass., Massachusetts General Hospital, Beth Israel Hospital, and the Boston City Hospital; died in the Phillips House, Massachusetts General Hospital, July 8, aged 67.

Bubis, Jacob Louis, Miami Beach, Fla.; born in Cleveland July 23, 1885; University of Wooster Medical Department, Cleveland, 1907; specialist certified by the American Board of Obstetrics and Gynecology; member of the Ohio State Medical Association, Cleveland Academy of Medicine, and the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; practiced in Cleveland, where he was for many years associated with the Mount Sinai Hospital, serving as chief of obstetrics and gynecology, and on the staffs of the Lakeside, St. Ann, and Maternity hospitals; formerly district surgeon for the Baltimore and Ohio Railroad; author of "Puerperal Gynecology" and "Women Are My Problem"; died in Mount Sinai Hospital July 23, aged 72, of hypertensive cardiovascular disease and cerebral hemorrhage.

Cavell, Roscoe William ⊕ Ann Arbor, Mich.; College of Medical Evangelists, Loma Linda and Los Angeles, 1921; assistant professor of psychiatry at the University of Michigan Medical School; member of the American Psychosomatic Society and the American Psychiatric Association; past-president of the Michigan Society of Neurology and Psychiatry; served as psychiatrist at the Wayne County General Hospital at Eloise, Mich.; for two years psychiatrist with the U. S. Public Health Service at the U. S. Penitentiary Annex in Fort Leavenworth, Kan.; veteran of World War II and formerly chief medical officer of the U. S. Induction Station in Detroit; psychiatric consultant to the Southern Michigan Prison; on the staff of the University Hospital; died July 13, aged 61.

Camero, Anthony Roland ⊕ Los Angeles; born in Philadelphia June 9, 1905; University of Pennsylvania School of Medicine, Philadelphia, 1929; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; formerly on the faculty of his alma mater; practiced in Philadelphia, where he was associated with the Philadelphia General Hospital and Misericordia Hospital; consulting pathologist at St. Francis Hospital in Lynwood, Calif.; since 1940 director of laboratories, Queen of Angels Hospital, where he died July 20, aged 52, of periarteritis nodosum and coronary thrombosis.

Lewis, Joseph Davidson, Santa Barbara, Calif.; born in Newcastle, Pa., in 1871; Cleveland Medical College, Homeopathic, 1893; specialist certified by the American Board of Otolaryngology; life member of the American College of Surgeons; member of the American Academy of Ophthalmology and Otolaryngology; past-president of the Minnesota Academy of Ophthalmology; past-president of the Yuba, Sutter, and Colusa Counties Medical Society; from 1913 to 1922 chief of the department of otolaryngology, Minneapolis General Hospital; on the staffs of Santa Barbara Cottage Hospital, Santa Barbara General Hospital, and St. Francis Hospital; died May 31, aged 86, of cardiovascular accident and generalized arteriosclerosis.

Drennen, Earle ⊕ Birmingham, Ala.; born in Arkadelphia Oct. 13, 1882; Columbia University College of Physicians and Surgeons, New York City, 1906; served as professor of clinical surgery at the Medical College of Alabama; member of the founders group of the American Board of Surgery; member of the House of Delegates of the American Medical Association in 1915; member of the American Surgical Association, Southern Surgical Association, and the International Society of Surgeons; fellow of the American College of Surgeons; veteran of World War I, associated with the Highland Baptist, Children's, St. Vincent's, and University hospitals; died July 4, aged 74, of a heart attack.

Crow, Hubert Dinwiddie, Suffolk, Va.; born in Raleigh, N. C., Dec. 4, 1911; Medical College of Virginia, Richmond, 1938; interned at the Medical College of Virginia, Hospital Division, Richmond; member of the Medical Society of Virginia; health director of a combined district health unit comprising the counties of Southampton, Isle of Wight, Nansemond, and the city of Suffolk; served as director of the medical training section of the state health department; on the staff of the Louise Obici Memorial Hospital; died July 21, aged 45, of a heart attack.

Ely, Donald, Portsmouth, N. H.; University of Pennsylvania School of Medicine, Philadelphia, 1954; certified by the National Board of Medical Examiners; interned at the Abington (Pa.) Memorial Hospital; served a residency in psychiatry at the Pennsylvania Hospital, Department for Mental and

Nervous Diseases in Philadelphia; service member of the American Medical Association; lieutenant in the U. S. Naval Reserve stationed at the Retraining Command in Portsmouth; died in Exeter (N. H.) Hospital June 24, aged 28.

James, Henry, New York City; Columbia University College of Physicians and Surgeons, New York City, 1907; formerly on the faculty of his alma mater; fellow of the American College of Physicians; member of the Medical Society of the State of New York; veteran of World War I; a founder of the Doctors Hospital, where he was a consulting physician; consulting physician at the Southampton (N. Y.) Hospital and the Roosevelt Hospital; served on the staff of the Bellevue Hospital; died July 14, aged 76.

Bechtold, Edmond ⊕ Belleville, Ill.; Washington University School of Medicine, St. Louis, 1915; fellow of the American College of Surgeons; veteran of World War I; a member of the Belleville Township Board of Education; past-president of the Belleville Branch, St. Clair County Medical Society; held the Silver Beaver Award of the Boy Scouts; a director of the First National Bank; on the staff of St. Elizabeth's Hospital, where he died July 16, aged 65, of coronary thrombosis.

Eagle, Arthur Bruce, Martinsburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1904; an associate member of the American Medical Association; past-president and secretary of the Eastern Panhandle Medical Society; city and county health officer; past-president of the West Virginia Horticultural Society; on the staffs of the City and Kings Daughters hospitals; since 1946 president of the Peoples Trust Company; died July 22, aged 76, of coronary disease.

Hutchinson, Alfred Dunbar, Pennington, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; an associate member of the American Medical Association; past-president and secretary of the Mercer County Medical Society; formerly practiced in Trenton, where he was a member of the board of education, an examining physician for the Selective Service, and on the staff of the Mercer Hospital, where he died July 5, aged 83.

Maroon, Sam Zacharia ⊕ Kingston, N. Y.; University of Cincinnati College of Medicine, 1941; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; interned at the Cincinnati General Hospital; served a residency at the New York Post-Graduate Medical School and Hospital in New York City; veteran of World War II; on the staffs of the Benedictine and Kingston hospitals; died July 20, aged 43, of coronary thrombosis.

Allen, Robert Wilson, Omaha, Neb.; St. Louis University School of Medicine, 1910; served as director of the Lee County Health Department while in Dixon, Ill.; veteran of World War II and the Korean War; died July 16, aged 68, of myocardial insufficiency.

Anderson, Bruce ⊕ Pontiac, Mich.; Detroit Homeopathic College, 1900; fellow of the American College of Surgeons; formerly practiced in Detroit, where he was on the staff of the Grace Hospital; died in the Pontiac General Hospital July 4, aged 83.

Andrews, William Arthur ⊕ Johnson City, N. Y.; Syracuse University College of Medicine, 1911; on the staff of the Charles S. Wilson Memorial Hospital, where he died July 11, aged 70, of pulmonary tuberculosis.

Antweil, Abraham ⊕ Fort Worth, Texas; University and Bellevue Hospital Medical College, New York City, 1918; member of the American Academy of General Practice; associated with the John Peter Smith and St. Joseph's hospitals; died in the Harris Hospital July 16, aged 62, of feticulo-endothelial sarcoma with metastases to liver, spleen, and heart.

Arline, Thomas J. ⊕ Cairo, Ga.; Louisville (Ky.) Medical College, 1893; on the staff of the Grady County Hospital, where he died July 7, aged 90, of uremia.

Baird, James Webber, Sadieville, Ky.; Cincinnati College of Medicine and Surgery, 1889; an associate member of the American Medical Association; died in Veachland June 25, aged 91, of arteriosclerosis.

Ball, Thomas Zopher ⊕ Crawfordsville, Ind.; Rush Medical College, Chicago, 1895; past-president of the Montgomery County Medical Society; member of the Association of Military Surgeons of the United States and the American Public Health Association; veteran of the Spanish–American War and World War I; served on the staff of the Culver Hospital; died June 19, aged 89.

Bates, Willard Allen, Madison, Wis.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1907; veteran of World War I; member of the House of Delegates of the American Medical Association from 1933 to 1935; fellow of the American College of Surgeons; died July 10, aged 80.

Beard, James Harvey, Sulphur Springs, Ark.; Memphis (Tenn.) Hospital Medical College, 1900; died July 8, aged 86.

Beazley, William Herbert, Baytown, Texas; University of Louisville (Ky.) Medical Department, 1912; served as state health officer; died in the San Jacinto Memorial Hospital July 11, aged 71, of myocardial infarction.

Blake, James Roscoe, Baltimore; Meharry Medical College, Nashville, Tenn., 1924; died in the Johns Hopkins Hospital June 27, aged 59, of micrococcal septicemia and pneumonia, and diabetes mellitus.

Boyd, Augusto Samuel ⊕ Panama, Republic of Panama; Columbia University College of Physicians and Surgeons, New York City, 1899; fellow of the American College of Surgeons; member of the Medical Association of Isthmian Canal Zone; died June 17, aged 77, of a heart attack.

Breath, Marshall Burt ⊕ San Antonio, Texas; University of Texas School of Medicine, Galveston, 1940; specialist certified by the American Board of Internal Medicine; veteran of World War II; on the staff of the Baptist Memorial Hospital; died July 15, aged 41, of myocardial infarction.

Burns, Samuel Lee, Stonewall, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; an associate member of the American Medical Association; died July 5, aged 81.

Carter, Roscoe Owen, Shreveport, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; member of the Louisiana State Medical Society; served as parish coroner; died July 7, aged 71, of cerebral hemorrhage.

Cartmell, Theodore Mithoff, Los Angeles; Columbia University College of Physicians and Surgeons, New York City, 1907; an associate member of the American Medical Association; veteran of World War I; served on the staff of the Hospital of the Good Samaritan; died July 3, aged 76, of congestive heart failure and arteriosclerosis.

Cavanaugh, Donald Nicholas ⊕ Wyoming, Ohio; Eclectic Medical College, Cincinnati, 1923; member of the American Academy of General Practice; associated with the Maple Knoll Hospital and the Good Samaritan Hospital in Cincinnati, where he died July 17, aged 58, of coronary thrombosis.

Cohen, Willi, New York City; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1905; died in the Beekman-Downtown Hospital May 21, aged 77.

Coleman, Clarence T. ⊕ Frankfort, Ky.; University of Louisville Medical Department, 1907; four-time mayor of Frankfort; in 1953, on his 71st birthday, was honored with a celebration of "Doctor Coleman's Day" by the people of Franklin County; associated with the Kings Daughters Hospital, where he died July 9, aged 75, of cerebral hemorrhage.

Cone, Andrew E., Portland, Ark.; Louisville (Ky.) Medical College, 1898; died in Dermott June 26, aged 81.

Crossley, Samuel Wallace ⊕ Lake Charles, La.; University of Texas School of Medicine, Galveston, 1919; member of the Texas Medical Association; died July 5, aged 75.

Counts, Noah Tilden, Cocoa, Fla.; University College of Medicine, Richmond, Va., 1907; an associate member of the American Medical Association; served on the staff of the Wuesthoff Memorial Hospital, Rockledge, where he died June 24, aged 81, of coronary occlusion.

Courter, Willard Orville ⊕ Bend, Ore.; State University of Iowa College of Medicine, Iowa City, 1938; a member of the district school board of Bend; veteran of World War II; past-president of the Central Oregon Medical Society; past-president of the medical staff of St. Charles Memorial Hospital; died July 14, aged 43.

Daniel, Joseph S., Corsicana, Texas; University of the South Medical Department, Sewanee, Tenn., 1895; died June 24, aged 89.

Davis, Warren Maynard ⊕ Bridgeport, W. Va.; Medical College of Virginia, Richmond, 1905; died July 26, aged 78.

de Brun, Harry Carl W. Schultz ⊕ New York City; Fordham University School of Medicine, New York City, 1915; professor of surgery at the New York Polyclinic Medical School and Hospital; fellow of the American College of Surgeons; for many years surgeon for the police department; associated with Lenox Hill and Reconstruction hospitals; died in Saranac Lake, N. Y., July 16, aged 67.

DeFeo, Amadeo Joseph ⊕ Everett, Mass.; Middlesex University School of Medicine, Waltham, 1937; died in York Beach, Maine, July 5, aged 47.

DeWitt, Charles H. ⊕ Valparaiso, Ind.; Chicago College of Medicine and Surgery, 1914; served as city and county health officer; examiner for the Selective Service; associated with the Porter Memorial Hospital, where he died June 22, aged 83, of arteriosclerotic heart disease.

Dempsey, Robert Bowne, Vallejo, Calif.; College of Physicians and Surgeons of San Francisco, 1903; an associate member of the American Medical Association; past-president of the Vallejo Chamber of Commerce; veteran of World War I; died July 9, aged 81.

Deskins, J. Tilden, Elkhorn City, Ky.; Kentucky University Medical Department, Louisville, 1905; died in the Methodist Hospital, Pikeville, July 12, aged 74.

Dooley, Frank Maxwell, Jackson, Miss.; Memphis (Tenn.) Hospital Medical College, 1890; died in the Mississippi Baptist Hospital June 29, aged 88.

Doolittle, George Miles, Portsmouth, Ohio; University of Buffalo School of Medicine, 1929; service member of the American Medical Association; formerly associated with the Veterans Administration Hospital in Fort Lyon, Colo.; on the staff of the Portsmouth Receiving Hospital; died July 13, aged 61.

Doyle, Helen MacKnight, San Francisco; Medical Department of the University of California, San Francisco, 1894; died in St. Francis Hospital July 22, aged 83, of arteriosclerotic heart disease.

Draper, Walter E., Billings, Mont.; Sioux City (Iowa) College of Medicine, 1904; veteran of World War I; died July 3, aged 76, of congestive heart disease.

Eder, Howard Leslie ⊕ Santa Barbara, Calif.; University of Minnesota Medical School, Minneapolis, 1922; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; at one time on the faculty of the University of Minnesota Medical School in Minneapolis; on the staffs of the Santa Barbara Cottage, Santa Barbara General, and St. Francis hospitals; died July 12, aged 60, of bronchial carcinoma.

Edmundson, Susan Offutt, Clearwater, Fla.; University of Pittsburgh School of Medicine, 1919; formerly practiced in Pittsburgh, where she was associated with St. Francis, Magee, and Shadyside hospitals; served on the staff of the Mayo Clinic, Rochester, Minn.; died July 15, aged 65, of coronary sclerosis.

Faver, Henry Merrell, Tampa, Fla.; Atlanta School of Medicine, 1909; served on the staff of the Tampa General Hospital; died July 7, aged 76, of myocardial infarction.

Fischl, Jacques Ruderfer ⊕ New York City; New York University College of Medicine, New York City, 1939; specialist certified by the American Board of Internal Medicine; served on the faculty of his alma.mater; chief physician of the New York Yankees baseball team; on the staff of the Lenox Hill Hospital; died in Le Touquet, France, July 24, aged 43, of pulmonary edema and coronary sclerosis.

Fleming, Patrick Joseph ⊕ Cambridge, Mass.; Tufts College Medical School, Boston, 1903; for many years city physician; died in the Cambridge City Hospital July 14, aged 81, of arteriosclerotic heart disease.

Flentje, Robert ⊕ Springfield, Ill.; St. Louis University School of Medicine, 1906; past-president of the Sangamon County Medical Society; died in St. John's Hospital July 16, aged 76.

Gaume, Harry W., Wichita, Kan.; Ensworth Medical College, St. Joseph, Mo., 1907; died July 15, aged 82, of cardiorenal disease.

Gilbert, Robert Samuel ⊕ New York City; Université de Genève Faculté de Médecine, Switzerland, 1949; died in the Mount Sinai Hospital June 25, aged 49.

Grala, William Leon, Hazleton, Pa.; Temple University School of Medicine, Philadelphia, 1919; an associate member of the American Medical Association and the Industrial Medical Association; on the staffs of the Hazleton State and St. Joseph's hospitals; served as director of the People's Savings and Trust Company; died July 19, aged 68.

Gulick, Arthur Cornelius ⊕ Goodland, Kan.; Jefferson Medical College of Philadelphia, 1900; served as county coroner and county health officer; on the staff of the Boothroy Memorial Hospital; died July 4, aged 87, of acute congestive cardiac failure.

Hardy, Hugh Winfred, Jasper, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1909; founder of the Hardy-Hancock Hospital; died in the John Sealy Hospital, Galveston, July 14, aged 70, of lower nephron nephrosis.

Harris, Grove Walton ⊕ Marshalltown, Iowa; St. Louis University School of Medicine, 1904; died in St. Mary's Hospital, Rochester, Minn., July 17, aged 74, of coronary occlusion.

Harsha, Gene Melford ⊕ Sistersville, W. Va.; University of Maryland School of Medicine and Colleg of Physicians and Surgeons, Baltimore, 1930; veteran of World War II; died July 22, aged 51, o sprue.

Hartenstein, Albert G., Rockland, Ohio; Universit of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; died in St. Joseph Hospital, Parkersburg, W. Va., June 24, aged 82, of cerebral hemorrhage.

Hartwell, John Bryant ⊕ Colorado Springs, Colo.; Harvard Medical School, Boston, 1904; formerly on the faculty of his alma mater; in 1939 vice-president of the Colorado State Medical Society; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; served on the staffs of the Memorial and St. Francis hospitals, and the Glockner-Penrose Hospital, where he died July 15, aged 78, of cerebral arteriosclerosis.

Hayes, Maurice Augustine, Cambridge, Mass.; Kansas City University of Physicians and Surgeons, Kansas City Mo., 1922; veteran of World War I; died in the Veterans Administration Hospital, Boston, June 19, aged 64.

Hazeltine, Harry Hobart, Everett, Wash.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; also a graduate in pharmacy; died July 5, aged 85, of heart disease.

Helwig, Edward C., Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; veteran of World War I; for many years associated with the Veterans Administration; died July 1, aged 72, of arteriosclerotic heart disease.

Hewitt, Leland Victor ⊕ Detroit; University of Michigan Medical School, Ann Arbor, 1923; on the staff of the Grace Hospital; died July 6, aged 58, of coronary occlusion.

Hiller, John P., Pollard, Ark.; St. Louis College of Physicians and Surgeons, 1903; died in the Piggott (Ark.) Hospital July 7, aged 80, of cerebral hemorrhage.

Hoffer, James Jacob, Chicago; National Medical University, Chicago, 1907; also a dentist; died in Long Island, N. Y., July 15, aged 79, of a heart block.

Jastram, Alfred Henry, Remsen, Iowa; Sioux City (Iowa) College of Medicine, 1897; served on the faculty of his alma mater; for 20 years chairman of the board of education; member and past-president of the county board of education; past-president of the staff of Sacred Heart Hospital in Le Mars; local surgeon for the Illinois Central Railway for 50 years; died July 8, aged 85, of arteriosclerotic heart disease.

Joyce, Edward, Hurley, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; an associate member of the American Medical Association; past-president and vice-president of the Yankton District Medical Society; served as a member of the city council and as mayor; vice-president of the Hurley State Bank; died July 4, aged 77, of cerebral hemorrhage.

Kallenberg, Henry Frederick, River Forest, Ill.; Northwestern University Medical School, Chicago, 1900; died at the YMCA Camp near Estes Park, Colo., where he was recreation director, July 25, aged 91.

Kendall, Eugene Lurell ⊕ Grand Rapids, Mich.; Detroit College of Medicine, 1909; died July 9, aged 79, of bronchopneumonia and cerebral thrombosis.

Kinnaman, Clarence Horace ⊕ Topeka, Kan.; Keokuk (Iowa) Medical College, 1899; served as state epidemiologist for the Kansas State Board of Health; veteran of World War I; at one time health officer of Geary County; member of the American Public Health Association and the Kansas Public Health Association; died in the Veterans Administration Hospital July 9, aged 88, of bronchopneumonia.

Knott, Howard James ⊕ Seattle; Johns Hopkins University School of Medicine, Baltimore, 1911; fellow of the American College of Surgeons; veteran of World War I; on the staff of the Seattle General Hospital; served as overseer and trustee at Whitman College, where in 1954 he was awarded the honorary degree of doctor of science; died July 7, aged 78, of coronary thrombosis.

Kunz, York, Rochester, N. Y.; Friedrich-Wilhelms Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1908; veteran of World War I; for many years on the staff of the Monroe County Hospital; died July 16, aged 74, of cerebral vascular accident.

Leopold, Francis D. ⊕ Buffalo; University of Buffalo School of Medicine, 1914; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served on the faculty of his alma mater; past-president of the Buffalo Academy of Medicine; on the staff of the Buffalo General Hospital, where he died July 8, aged 69, of hypertension.

Lewin, Norbert, New York City; Martin Luther Universität Medizinische Fakultät, Halle-Wittenberg, Prussia, Germany, 1922; died July 4, aged 61.

Lewis, Claud, St. Cloud, Minn.; Washington University School of Medicine, St. Louis, 1924, service member of the American Medical Association; member of the American Psychiatric Association; veteran of World Wars I and II; associated with the Veterans Administration Hospital; died June 27, aged 59.

Loomis, Ralph Henry ⊕ Sidney, N. Y.; Syracuse University College of Medicine, 1909; served overseas during World War I; formerly member of the board of education and county coroner; received Sidney's highest honor in 1946 when he was named "Man of the Year"; for many years chief of the staff, The Hospital, where he died July 6, aged 71, of coronary occlusion.

Mahoney, John Francis ⊕ New Bedford, Mass.; Tufts College Medical School, Boston, 1915; died in the Veterans Administration Hospital May 17, aged 65, of arteriosclerosis.

Morse, Samuel, New York City; University and Bellevue Hospital Medical College, New York City, 1906; specialist certified by the American Board of Ophthalmology; served as instructor in ophthalmology at the New York Post-Graduate Medical School and Hospital; on the staff of the Fordham Hospital; died July 5, aged 70, of cerebral hemorrhage.

Schneider, Carl Oscar ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; died in the Grant Hospital July 18, aged 78, of myocardial infarction.

FOREIGN LETTERS

BRAZIL

Electroencephalographic Findings in Cerebral Abscess.—In *Arquivos de Neuro-psiquiatria* (June, 1957) P. P. Pupo and co-workers called attention to the electroencephalographic findings in patients with cerebral abscess. In a series of 22 patients, 20 had electroencephalograms prior to operation and 2 had postoperative electroencephalograms only; 17 of the 20 also had postoperative tracings. All patients were operated on, and all received antibiotics. In the group of patients who had a preoperative electroencephalogram, the authors invariably found diffuse changes in the tracings. They found focal changes consisting mainly of delta waves of 0.5 to 3.0 cycles per second with a potential of 400 to 500 mv. in 19, focal depression of the basic rhythm in 11, and an epileptogenic focus in only 2. Slow delta waves and focal depression of the basic rhythm are diagnostically important, particularly when studied in relation to the clinical findings.

In those who had clinical and electroencephalographic examinations 1 to 60 months postoperatively, the authors found an active convulsive focus in 10 of the 17 patients. This incidence is high, and it is in accordance with the high frequency of epilepsy after cerebral abscess. The period between the operation and the onset of the focal activity varied from 1 to 25 months. Of the 10 patients with focal activity and clinical epilepsy, only 2 showed focal activity before the healing of the abscess. The authors believe that the healing, which is a gradual process, is responsible for the onset of these clinical and electroencephalographic manifestations. In the same group, only four patients had normal electroencephalograms during the follow-up; two had normal electroencephalograms during 5 and 15 months, respectively, but showed focal activity later. Three other patients had signs of nervous tissue damage (delta waves) one to three months after the operation (patients with convulsive seizures or with signs of a developing abscess). In six patients there were slight changes of the basic rhythm due to the healing and with no clinical correlation. The authors concluded that the electroencephalogram is an important auxiliary in the diagnosis of cerebral abscess and in the prognosis of patients who are surgically treated, since in the latter it may reveal disappearance of acute signs of cerebral involvement or early formation of an active convulsive focus, permitting the institution of the anticonvulsive therapy.

Acute Leukemia.—Seventeen patients (12 children and 5 adults) with acute leukemia were given 1 Gm. of prednisone daily by Dr. Michel Abujamra and co-workers (*Revista do Hospital das Clínicas de São Paulo*, June, 1957). The criteria used for evaluation of the results were those of the Cancer Chemotherapy National Service Center of the United States. The mean duration of complete remission was 64 days, and the maximum was 210 days. The mean survival time was 165 days, and the maximum was 450 days. The steroid has specific action on the leukemic cells, stimulating the erythropoiesis, the granulopoiesis, and the platelet production. No toxic effects were registered, even in the electrolyte serum concentration. The authors concluded that prednisone is a valuable therapeutic agent in spite of its temporary action. The large doses used by them gave longer remissions and survival times than did the usual doses of about 2.2 mg. per kilogram of body weight. Prednisone seems to be indicated, especially in large doses, in the severe acute cases in which there is no time to wait for the gradual response to such agents as mercaptopurine and the folic acid antagonists.

Fulminating Necrotic Colitis.—Five cases of fulminating necrotic colitis after antibiotic therapy were reported at a meeting of the Medical Society of Ribeirão Preto by Estevão Nador and L. H. Camera Lopes. All the patients died postoperatively of toxemia. Although not previously observed in Brazil, many such cases have been reported from other countries. The condition is attributed to the development of strains of micrococci, enterococci, Pseudomonas aeruginosa, and other bacteria resistant to antibiotics, particularly those of wide range of action. The patients complain of profuse and bloody diarrhea, vomiting, and high fever. Dehydration and toxemia lead to irreversible shock. Autopsy reveals necrosis of the colon. The lesions were pseudomembranous, pseudopolypous, and fibrinonecrotic. Microscopically, the main alterations seen were necrosis of the mucosa, lymphocytic infiltration of the lamina propria, and thrombosis of the blood vessels.

The items in these letters are contributed by regular correspondents in the various foreign countries.

INDIA

Infant Feeding.—P. T. Rao (*Indian Journal of Child Health,* July, 1957) analyzed the nutritional habits and status of 2,100 children attending the outpatient department of the Government General Hospital in Madras. Of these, 1,826 (83.9%) were under the age of 5 years. All had been breast fed up to one year of age, 79% had been breast fed up to the age of 18 months, and about 59% had been breast fed at the age of 2 years. The earliest supplemental feeding given to infants of the lower economic group is coffee, given even as early as 6 months of age. Such nutritive food supplements as milk and other protein foods are given to 41% of children under the age of one year and to 30% between 1 to 5 years of age. Even so cheap a carbohydrate supplement as rice is usually not given until the infant is one year old. The incidence of vitamin A deficiency, which was taken as an index of nutritional status, was maximal among children receiving only breast milk after the age of 12 to 18 months, with a steep rise in incidence after 18 months. These children who were breast fed for prolonged periods were not given adequate vitamins or calories as evidenced by their deficiency of vitamin A. Those children who received supplementary milk in addition to breast feedings were found to be in better health than those who were given only breast milk or had such supplementary foods as coffee and rice. More cow's milk in the diet of these children would alleviate many of the problems of child health.

Water Tolerance Test.—A. Ahmed (*J. Indian M.A.* 29:3 [Aug.] 1957) noted that retention of salt and water is a complication of many types of chronic illness and leads to edema in chronic anemia and hypoproteinemia. In health, sudden ingestion of a large amount of water leads to an immediate response from the kidney with elimination of the excess water and some salt within a few hours. In chronic illness, this response is altered. The author studied the ability of kidneys to eliminate water and chlorides when the water content of the body is increased by the ingestion one liter of water. Healthy subjects eliminated an average of 908 cc. and the diseased subjects an average of 766 cc. of urine within three hours. The pattern of diuresis was almost the same in health and chronic disease, the peak diuresis occurring at 90 minutes in both groups, though the average maximal flow of urine per minute was only 6 cc. in the diseased group.

In most patients, tolerance to a test dose of water was not abnormal. With this test dose of water, the average healthy subject eliminated, within three hours. an average of 1.7 Gm. of chlorides as sodium chloride, and ill subjects eliminated 1.75 Gm. An intake of water up to 5 or 6 liters in 24 hours results in the elimination of more chlorides, with additional elimination of water leading to a state of dehydration. No correlation was noted between the hemoglobin or the total plasma protein concentration of blood and the maximal flow of urine per minute or total output of urine in three hours after ingestion of the test dose. Aminophylline was effective in increasing the urinary excretion of water and chlorides. The administration of aminophylline and ammonium chloride helps in sustaining the diuretic effect of mersalyl sodium for several days and also potentiates its diuretic activity.

NORWAY

The Prosodic Grunt.—G. H. Monrad-Krohn (*Journal of Mental Science,* vol. 103, no. 431, April, 1957) considers prosody the third fundamental element of speech, the first and second being vocabulary and grammar. As an example of the author's use of the term, he cites the case of a young woman whose traumatic lesion of the left cerebral hemisphere left her with a pecularly changed language, the salient feature of which was such a complete change of her "melody of speech" that she was taken for a foreigner. The prosodic grunts which she had lost are an important part of everybody's speech pattern. When we listen to a person, we betray our interest, assent, or dissent by interjections or short words such as oh, quite, and perhaps, or probably more often by inarticulate sounds, the tone of which expresses our sentiments. You are a good or a bad listener according to whether your mastery of prosodic grunts is good or bad. A patient with paralysis agitans often loses these prosodic grunts completely. The son of such a patient may conclude that "father is not so bright as he was, he no longer takes the same keen interest as before, nor does he seem to grasp the points." Bereft of prosodic grunts, father is put down as being "cold and unfeeling." He begins to get isolated, he feels resentful about the altered mental atmosphere, becomes depressed and even hostile to his surroundings, and a vicious circle is set up, all for want of a quality in speech which we do not appreciate till we have lost it.

Thoracoplasty.—Dr. Alexander Tuxen has incorporated his long experience of pulmonary tuberculosis in a monograph entitled "A Study of the Course of Pulmonary Tuberculosis After Treatment with Thoracoplasty" (Oslo University Press). A series of 977 patients formed the basis for this study. The minimum observation period was five years. This study does not lend itself to any facile summing up of the author's conclusions, but as a work of reference it should be of special value to the physician who wants to know what can be achieved by thoracoplasty and what are the chief conditions likely to determine the outcome of this operation in any given case.

SWITZERLAND

Afibrinogenemia.—Until recently the danger of transmission of hepatitis by fibrinogen was an unsolved problem. Since the efficiency of ultraviolet irradiation is doubtful, it seems desirable to keep the plasma pools from which fibrinogen is to be prepared as small as possible. In Berne, the plasma from only two donations is united in ordinary blood bottles. Precipitation of fibrinogen with alcohol, centrifugation, resolution of the precipitate, and lyophilization are subsequently carried out under sterile conditions in the same bottle (*Vox Sanguinis* 2:100, 1957). The tedious and yield-lowering filtrations are omitted. Fibrinogen from two blood donations contains on the average 1 Gm. of clottable fibrinogen. This preparation is distributed by the Red Cross Blood Transfusion Service to maternity wards for emergency treatment of acute afibrinogenemia. Fibrinogen has also proved its hemostatic activity in cases of thrombopenic bleeding.

UNITED KINGDOM

New Hypoglycemic Drugs.—At the meeting of the British Diabetic Association at Oxford, a series of papers was read on the use of the sulfonylureas in the treatment of diabetes mellitus. Dr. R. F. Mahler reported that more sustained plasma concentrations were obtained with carbutamide than with tolbutamide. The latter produced higher plasma levels four hours after administration, but rapid excretion subsequently resulted in failure to maintain active therapeutic concentrations for 24 hours. Dr. Joyce Baird, of Edinburgh, confirmed these findings and said that, although a single daily dose of carbutamide could maintain control, tolbutamide should be given in two equal doses. In most patients, two doses of 0.5 to 1.5 Gm. in 24 hours were adequate, but a few required three or even four doses. In Dr. Baird's experience, plasma concentrations of 8 to 18 mg. per 100 ml. were the most satisfactory therapeutically. Most workers appear to have abandoned carbutamide in favor of tolbutamide therapy on account of the toxic effects of the former. Sustained control is achieved by the use of tolbutamide in 36 to 55% of patients considered likely to respond to oral therapy on clinical grounds—those with milder forms of diabetes, usually over 45 years of age, and not likely to become ketotic. Some patients appear to become refractory to the drug. There appears to be no way of determining which of the apparently suitable patients will respond, apart from clinical trial. In 2 of 155 patients treated with tolbutamide, thrombocytopenia and leukopenia developed but not to a serious degree. About 25% of the patients taking 40 units or less of insulin a day could be well controlled if tolbutamide were substituted for insulin.

In his series of 72 patients, Dr. J. D. N. Nabarro found a long-term satisfactory response in 31 (43%). In an outpatient trial, involving 142 patients, Dr. M. Dulake reported satisfactory control in 36%. Dr. Arnold Bloom reported that after a six weeks' course of 2 Gm. of tolbutamide daily, 22 of 32 patients who had responded remained controlled adequately on withdrawal of the drug. Dr. Ian Wang of Glasgow reported that of 100 patients given a 14-day course of 1 Gm. of tolbutamide daily, 57 responded satisfactorily. Of these, 22 remained controlled without further therapy. Of those who relapsed afte varying periods, 22 responded to a further course o the drug.

Influenza A Virus.—During the winter of 1955-195 in England and Wales, 101 strains of influenza virus were isolated by laboratories of the Publ Health Laboratory Service, according to L. A. Hatc (*Month. Bull. Min. Health* 16:138, 1957). Hema glutination-inhibition tests with each strain, usi ferret serums, showed that 97 strains resembled the Scandinavian 1953 group, two resembled the Eire 1955 group, and two resembled the Dutch 1956 group. The Eire 1955 and Dutch 1956 strains showed a marked difference serologically from each other and from Scandinavian 1953 strains. The analysis of the 97 available Scandinavian strains showed that, whereas they resembled each other as a group, there was much variation within the group, particularly in the degree with which individual strains reacted with strain-specific serums.

Medical Aspects of the Suez Campaign.—The first report of the medical aspects of the Suez campaign is published in *The Practitioner* (179:191 [Aug.] 1957). It is by three physicians who were members of the first field ambulance to be ashore—10 minutes after the assault began on Nov. 6. The first casualties were dealt with on the beaches, but, within an hour, headquarters had been set up in a battered hotel, while sniping still went on in the cellars and gardens. On the first day, this company treated 70 British casualties within the framework of the policy of urgent evacuation. At first, helicopters were flying in commandos from the aircraft carriers lying offshore, and casualties were loaded into them for the return flight. All operations at this stage took place on the carriers. No British wounded were held for longer than 30 minutes. Later in the day, the ballroom of the hotel was cleared of its wreckage and used as a ward; the kitchen became a mortuary and a bar the operating room. By this time the company had been joined by a field surgical team. By noon on Nov. 7, they had 50 seriously wounded Egyptians. The casualties were both military and civilian, but at times it was difficult to distinguish them. Some were naked, and these were known to be military, as many had discarded their uniforms in the belief that this would prevent reprisals. Some civilians, when searched, were found to be armed. A 12-year-old boy was armed with a Czechoslovakian automatic carbine. Those who could speak English protested their love for the British, but these usually were found to be the most heavily armed.

Senior and specialized medical officers visited the Egyptian hospital, and the hospital was supplied with such drugs, dressings, and blood as could be spared. A civilian Egyptian surgeon, with whom the unit had the most cordial professional relations, stayed in the hospital for some time and went round the improvised ward. The major lesson of the campaign was that the helicopter as a means of evacuation (from battlefield to hospital bed in 30 minutes) is a great lifesaving factor for battle casualties, reducing shock to the minimum and providing the security for which the wounded crave. Without this method of evacuation, many of these severely wounded men would not have reached the operating table alive.

Shellfish Regulations.—Most of the 7,000 tons of cockles eaten annually are cooked by the producers before distribution. In spite of the fact that, under the shellfish regulations of 1934, the heat treatment specified is sterilization by steam under undefined pressure, many of the cockles on the market are still heated in open cauldrons for about four minutes. Cockles cooked thus and salted for distribution are preferred by some to steamed cockles, which are said to lose their flavor. Further, the cost of installing an apparatus for steaming, at the moment, would be prohibitive and would put many fishermen out of business. H. P. Sherwood (*Month. Bull. Min. Health* 16:80, 1957) therefore determined the conditions under which immersion in hot water could be relied on to sterilize shellfish in respect to bacteria of the coli-aerogenes group. His experiments on heating shellfish in a relatively large volume of water, to prevent cooling of the water on immersion, showed that sterilization of large cockles and mussels resulted from immersion for two and two and one-half minutes, respectively, at 100 C. For each reduction of water temperature by 10 C down to 70 C, extension of the immersion period by about half a minute was necessary. It is therefore suggested that to make polluted cockles and mussels safe for human consumption by heating in bulk, they should be kept fully immersed in boiling water for one and two minutes, respectively, after resumption of boiling.

Nial Reynolds (*Month. Bull. Min. Health* 16:86, 1957) reported that, at 100 C, one to one and one-half minutes' cooking is necessary before the flesh of periwinkles can readily be removed, though cooking for one-half minute is sufficient to destroy any coliform bacteria present. At 70 C, cooking for one minute was necessary to destroy such bacteria. Cooking which was sufficient to render the flesh extractable was sufficient to disinfect the periwinkles. In other words, if a periwinkle has been cooked sufficiently to be eaten by the traditional pin method, any enteric bacteria derived from pollution of the periwinkle beds will have been destroyed.

Penicillin Resistance in Cattle.—In a two-year period (1954-1956), the incidence in Dorset of penicillin-resistant Micrococcus pyogenes var. aureus in herd milk samples increased from 9 to 37%, according to G. H. Tee (*Month. Bull. Min. Health* 16:141, 1957). Evidence is adduced that the use of penicillin in treating bovine mastitis—usually of micrococcic origin—is widespread, and it is suggested that this may be responsible for the emergence of the penicillin-resistant strains.

Inhibitor of Gastric Secretion.—Douthwaite and coworkers (*Brit. M. J.* 2:275, 1957) investigated the effect of a new parasympatholytic compound, (1-methyl-2-pyrrolidyl) methyl benzilate methyl methosulfate, or IS 499, on gastric secretion. Doses of 1 to 20 mg. given at 11 p.m. or 5 a.m. reduced the secretion of gastric acid in response to a test meal in the early morning. A dose of 5 mg. given three hours before the test reduced the gastric secretion of acid by 40 to 60%. Larger doses inhibited gastric secretion for nine hours. There were no troublesome side-effects with doses up to 10 mg. Clinical trials are being undertaken to see if IS 499 is suitable for the control of acid secretion in patients with duodenal ulcer.

Epidemic of Encephalomyelitis.—Between April, 1955, and January, 1956, a total of 60 patients with poliomyelitis were treated in the infectious diseases unit of the Royal Free Hospital, London. In the same period, 15 patients were observed in whom the diagnosis was acute encephalomyelitis, details of which are given by A. Melvin Ramsay (*Pub. Health* 71:98, 1957). Motor weakness, rigidity, exaggerated reflexes without muscular wasting, sensory disturbances, and normal spinal fluid findings suggested a disease other than poliomyelitis. This was confirmed by negative serologic tests for all three types of poliomyelitis virus. Electromyography revealed absence of the denervation characteristic of poliomyelitis and the presence of long polyphasic units with reduced interference pattern characteristic of a myelopathic lesion. The occurrence of reticuloendothelial hyperplasia in some patterns suggested that there may be a viremic phase, after which the disease may abort. Five patients with behavior changes were examined by electroencephalography. Abnormalities were detected in all five, but these were nonspecific and might well have been constitutional and not due to infection. The pattern of the disease was similar to that observed in outbreaks which have occurred in Iceland, the United States, Australia, and South Africa. This is believed to be a new disease.

Embassy's Doctors.—An advertisement in the medical press for a medical officer for the British Embassy in Moscow specified that he be under 40 and, if married, preferably have not more than one child. A correspondent in *The Lancet*, protesting against such a condition, wrote: "This encouragement of only children, with all its disadvantages both to child and parents, is unworthy of the employer and is, in addition, a very poor exemplification of the British way of life in an important setting—Moscow."

Fibrocystic Disease of the Pancreas.—Fibrocystic disease of the pancreas is being recognized with increasing frequency. Estimation of the concentration of sweat electrolytes is considered the most reliable of the many laboratory tests used, but the dangers associated with causing infants wrapped in plastic bags to sweat has prompted the devising of alternative methods. MacFarlane and co-workers (*Brit. M. J.* 2:274, 1957) use a medium prepared by adding 4.2 Gm. of silver nitrate and 2.4 Gm. of potassium chromate to 500 ml. of normal agar base. When this is applied to the finger tips, the salt in the sweat decolorizes the orange silver chromate suspended in the agar. An estimate of the salt content of the sweat can be made from the degree of decolorization in unit time. To date 53 patients with known fibrocystic disease have been tested by this method, and all gave a strongly positive sweat reaction for sodium chloride. This test offers a simple and reliable method of screening cases of suspected fibrocystic disease.

New Method for Estimating Blood Glucose Levels.—It is well known that the estimation of blood glucose levels by reducing methods lacks specificity and gives values that are too high. Huggett and Nixon (*Lancet* 2:368, 1957) describe a new and highly specific method. In the presence of glucose oxidase, which is highly specific for glucose, the latter is oxidized to gluconic acid and hydrogen peroxide. This, in the presence of peroxidase, can oxidize a suitable oxygen acceptor to give a colored oxidation product, the intensity of color being proportional to the amount of glucose present. Glucose oxidase is obtainable from Penicillium notatum and peroxidase from horseradish. The oxygen acceptor used is o-dianisidine, dissolved in 95% alcohol. A mixture of these substances adjusted to a pH of 7 gives an orange-brown color in the presence of glucose. The blood glucose level is estimated by adding to the blood an anticoagulant (heparin, or a mixture of sodium fluoride and potassium oxalate), deproteinizing with alcohol or zinc hydroxide, and incubating the filtrate at 35 to 37 C for one hour with the mixture of glucose oxidase, peroxidase, and o-dianisidine. The color that develops is compared in an absorptiometer or spectrophotometer with the colors produced by standard glucose solutions. The glucose level may be estimated in plasma directly, if allowance is made for its color in a blank, but, for the estimation of glucose in urine, the latter must first be decolorized with charcoal.

Guy's Hospital.—The Ministry of Health has approved the rebuilding of Guy's Hospital, one of the better known London teaching hospitals, founded in 1721 by Thomas Guy, a London bookseller and philanthropist. The hospital suffered extensive bomb damage during the war. A start will be made in September on the erection of a new surgical block costing $5,600,000 on the site of a wing demolished by bombing. It will have nearly 400 surgical beds, 10 operating theaters, and new casualty and radiotherapy departments. The major part of the cost will be borne by the Ministry of Health, although Guy's Hospital itself will contribute a substantial sum from its own funds, and the University Grants Committee will make a grant. The rebuilding plan includes a new medical school. Much of the present building dates back to the original hospital of 1721. Additions were made in 1851, and, because of its historic associations, part of the old hospital will be preserved.

U. S. Servicemen to Be Vaccinated Against Asian Influenza.—The Asian influenza epidemic has reached some of the United States Air Force camps in Great Britain. The areas affected are at Newbury, Burtonwood, and West Drayton. Vaccination of 80,000 members of United States armed forces in Britain will begin in October with vaccine imported from the United States. Although extensive field trials of the Asian influenza vaccine made at the Wright-Fleming Institute, St. Mary's Hospital, London, have been planned, no preparations for large-scale vaccination of the British population have been made. Sporadic outbreaks are occurring in schools and armed forces barracks. It is reported that the infection is spreading rapidly in Lagos, Nigeria, where the number of cases has reached 3,500. The mortality there is low. Four physicians and 50 hospital personnel of the General Hospital suffered from Asian influenza, which is seriously affecting many commercial organizations. The epidemic started in Kano, Northern Nigeria, where more than 3,000 cases were reported.

Contaminated Beaches.—It will be two or three years before a final report is available on whether sewage-polluted sea water is harmful to bathers. An investigation started two years ago will take time to complete, according to Dr. G. S. Wilson, director of the Public Health Laboratory Service. The service began the inquiry on its own initiative to determine whether any serious effects are apparent in human beings as a result of discharge of untreated sewage into the sea. Sometimes bathing beaches were condemned unnecessarily, and sometimes beaches which should have been marked as contaminated were open to the public. A prodigious degree of contamination due to sewage exists around Great Britain's coasts. Along the south coast an estimated 40 gallons of sewage-contaminated water are poured into the sea per person per day. This is supplemented by discharge from ships. The contamination of other seaside areas is of about the same order.

Renewed attention is being given to the problem this year because of the increased incidence of unexplained poliomyelitis. The Minister of Health has said there is no evidence of transmission of poliomyelitis or any other disease through sewage-infected sea water. Though agreeing, many experts regard this as a negative approach, stating that there is also no evidence that poliomyelitis and other diseases are not so transmitted. Mr. A. Sciver, president of the Institution of Public Engineers, said that the danger had increased markedly in recent years. Holidays with pay have resulted in many more families visiting the coast each summer. Samples of water taken at intervals along the south coast showed that for several miles out to sea the water was not fit for bathing "by fresh water standards." It might be that sporadic cases of poliomyelitis occurring inland are due to infection of people who bathed at seaside resorts in contaminated water. From an aircraft, Mr. Sciver was able to study a 10-mile belt of opalescent polluted water stretching from the south coast. This area moved back and forth with the tide, only the periphery gradually diffusing into the greater volume of sea water. Gulls which scavenged on the discharged effluent had an unfortunate habit of then spending the night on local reservoirs. Where sewage percolated over a beach, rock pools where children played were contaminated.

Every estuary in the country is more or less contaminated. London pours 350 million gallons of crude sewage into the tidal Thames every day. Because of the "piston" effect of the tides it might take eight days to clear one discharge to sea. Shellfish are contaminated and may cause outbreaks of dysentery or typhoid if eaten raw or after inadequate cooking. Whatever the results of investigation into the health hazards, reports from wide areas of the coast leave no doubt that beaches are too often unpleasantly encrusted. Many inhabitants will not bathe or permit their children to bathe in these areas, but visitors frequently are ignorant of the proximity of sewage outfalls. At Gosport, a notice warning tourists not to bathe was removed because it curtailed tourist trade. Few local authorities regard it obligatory to give warnings of contamination of their beaches. At Bournemouth, where a public health service laboratory is conducting an inquiry, the resort's stretches of golden sand, though pleasing from a distance, are often distasteful at close range.

An annotation in the *British Medical Journal* of Aug. 17 states that a patient with poliomyelitis may excrete in 1 Gm. of feces enough virus to infect one million monkeys. Half the patients are still excreting virus after 3 weeks, and some continue to excrete it up to 12 weeks. Since many rivers, streams, and ditches in Great Britain, as in other countries, are polluted by human excreta, parents should keep their children away from such area when cases of poliomyelitis are occurring in them. If sewage containing poliomyelitis virus is pumped into the sea and it comes into contact with bathers, there would seem to be some risk of the disease being transmitted. Since no outbreak of poliomyelitis has been traced to this particular source, the risk of infection is probably slight, but while coastal resorts continue to grow and more and more people take seaside holidays, England is fast becoming a jewel set in a sea not of silver but of sewage.

Poliomyelitis Risk to Family Physicians.—Whether general practitioners and their families in areas where poliomyelitis is rife should be vaccinated is to be considered by the Joint Committee on Poliomyelitis Vaccine. There is evidence that family physicians run special risks. Doll and Hill, of the Medical Research Council, reported earlier this year that between 1951 and 1956 there were eight deaths from poliomyelitis among 34,494 physicians in Great Britain. According to the rate in the general population, not more than one such death would have been expected.

CORRESPONDENCE

PHENYLKETONURIA

To the Editor:—Recently there has been some unsolicited publicity in the lay literature about a project which the College of Medical Evangelists is undertaking. The project is concerned with the possibility of detecting cases of phenylketonuria in early infancy by means of a simple diaper test. Detection of these cases has become of importance due to the recent studies which show that mental deficiency may be prevented if treatment is instituted early. The Los Angeles City, the Los Angeles County, and the San Bernadino County health departments are cooperating with us by allowing the testing to be done on the many thousands of infants in their well-baby clinics (a total of well over 600 "half-day" clinics per month). It is estimated that in the neighborhood of 125,000 tests will be performed on 35,000 to 45,000 infants per year. This letter is to acquaint other doctors with the test that is being done.

Phenylketonuria has been described as medicine's first foothold in the solution of the many unknown causes of mental deficiency. Before 1934 these patients were part of a large group of mental defectives due to unknown causes. In 1934, Folling demonstrated the abnormal excretion of phenylpyruvic acid in the urine. The condition proved to be a hereditary error of metabolism which is transmitted by a recessive gene. The babies are born normal and then progressively degenerate between about 4 months and 24 months of age to levels of severe to moderate mental deficiency. Frequently they have fairer skins and lighter hair than their parents and normal siblings. The error in phenylalanine metabolism has been extensively studied. The amino acid, phenylalanine, is present in every diet and is normally metabolized to tyrosine. In persons with phenylketonuria this pathway is blocked and phenylalanine accumulates in the blood and spills over in the urine as phenylpyruvic acid. The excess phenylalanine in the blood coincides with progressive mental deterioration.

Recent studies have shown that a phenylalanine-restricted diet if started early enough in infancy can prevent mental deficiency. Observations also suggest that the special diet may not be necessary beyond 2 or 3 years of age. Studies on institutionalized mental defectives (where phenylketonuria constitutes approximately 1% of cases) indicate that the incidence of this condition is about 1 in 25,000 in the general population. However, no survey of the general population has been reported yet. Detection efforts thus far have been confined largely to children already showing evidence of retardation and to siblings of persons known to have phenylketonuria.

The test is a simple adaptation of the standard urine test for phenylketonuria. We believe, and hope that it will be proved, that this simple and extremely inexpensive test should be a routine well-baby examination in the early months of life. The test consists of placing a drop of 10% solution of ferric chloride on a freshly wet diaper. A positive reaction is the almost immediate appearance of a dark blue-green color. (Bile is the only other substance we know of in urine that gives a green color with ferric chloride. Diacetic acid will give red-brown and aspirin blue-purple.)

The test is positive in affected infants from about 4 weeks of age on. It has been found that these children occasionally do not excrete phenylpyruvic acid and therefore the test should be repeated at each well-baby visit. Positive reactions can be verified by mixing equal amounts of urine and 2,4-dinitrophenylhydrazine in 1 *N* solution of hydrochloric acid. A yellow turbidity should occur within several minutes.

We have tried this diaper test in a number of known cases of phenylketonuria and find that it is reasonably dependable. We have now two young infants under our care who at the time of initial diagnosis, at 6 and 7 weeks of age respectively, had positive diaper tests (confirmed by other tests including blood phenylalanine levels). This has encouraged us, because prior to this we had no proof that the diaper test would work on such young infants. The spots were of a medium intensity grey-green color.

One last point, although we feel that the screening program as we have outlined it is perhaps new, we do not claim originality for the idea of using a drop of ferric chloride on a wet diaper. Several writers have suggested that such might be tried if urine samples were not available.

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LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Degree of Proof Required.—This was an action by a surviving husband to recover damages for the wrongful death of his wife, which resulted from the alleged negligence and malpractice of the defendant physician and the defendant hospital. From a judgment sustaining the defendants' separate demurrers to the plaintiff's evidence, the plaintiff appealed to the Supreme Court of Kansas.

The court's summary of the evidence indicated that several months after the plaintiff's wife became pregnant, she went to the defendant physician for treatment. She was the mother of three children and the defendant had been her doctor for each of her former pregnancies. During her last pregnancy, in connection with which her death resulted, there were no symptoms of anything unusual, and all signs pointed toward a normal childbirth with normal results. Early in the morning of Feb. 6, 1954, the plaintiff's wife had a discharge indicating the imminence of commencement of labor and notified the defendant by telephone. He directed her to go to the defendant hospital at once, which she did. He arrived at the hospital a few minutes after she did and his examination showed that she was not yet in labor but that early labor was anticipated. This was about 5:45 a.m. There was nothing to indicate anything wrong with her condition or that delivery would be anything other than normal. Later that morning the defendant directed some medication and that afternoon he made another personal examination. There being no signs of definite labor, he directed further medication. Shortly afterwards a few contractions commenced and at 3:30 p.m. the membranes ruptured normally. Thereafter the contractions increased to proper stage and medications were discontinued. At 10:45 that night the defendant again made a personal examination and directed medication. At 2 a.m. the next morning, obstetric nurses, who, in the meantime, had been caring for the plaintiff's wife in the regular course of their professional duties, advised the defendant that her progress was nearly complete. He arrived at the hospital a few minutes later, after which the fetus was delivered. Blood plasma and oxygen were administered but the patient died about an hour and a half later. An autopsy was performed by a recognized and experienced pathologist and this examination disclosed that the patient's death occurred as a result of hemorrhage due to a rupture of the uterus after delivery. The evidence further disclosed that the upper part of the uterus, instead of thinning out as the fetus developed, as is ordinarily the case, was more than twice the usual thickness, while the lower and smaller part of the uterus, where the rupture occurred, had developed extremely thin, and that such condition was latent and a very unusual type of abnormality, and that ordinarily there would be no warning of such condition prior to delivery.

With respect to the part played by the hospital and attending nurses, the evidence disclosed that there was nothing unusual or out of the ordinary in connection with the patient's pregnancy leading up to her actual delivery, and that during the period she was in the hospital she was under the routine and regular care of nurses of many years' experience, and that they ministered to her in the usual and ordinary manner in the light of her known condition. During this period she was given the usual and customary rectal examinations, and nurses assisted the doctor in the actual delivery, as was customary. Medical testimony was to the effect that at her state of pregnancy a vaginal examination would be improper and that only rectal examinations would be, and were, given.

The plaintiff testified he was in the delivery room a part of the time and that he observed what the nurses were doing with respect to making examinations, and he expressed the opinion that his wife was given a vaginal examination. He also testified concerning pressure applied by the nurses to his wife's abdomen. Finally there was testimony from several members of patient's family concerning a conversation had with the defendant the day following her death in which he was alleged to have said that perhaps her life could have been saved if a cesarean operation had been performed.

The Supreme Court said that the relationship between a physician and his patient, implied in law, is that he possesses that reasonable degree of learning and skill ordinarily possessed by members of his profession and of his school of medicine in the community where he practices or similar communities, having due regard for the advance in medical or surgical science at the time, and that he will use such learning and skill in his treatment of the patient with ordinary care and diligence. This rule is elementary and is founded on considerations of public policy, its purpose being to protect the health and lives of the public. A physician is not a guarantor of good results, and civil liability does not arise merely from bad results, nor if bad results are due to some cause other than his treatment. In case of doubt as to which of two or more courses is to be pursued, a physician is bound to use his best judgment. On questions of a medical or scientific nature as to what is the proper treatment to be followed in a particular case, only those who are qualified as experts are permitted to testify, the reasons being that lay witnesses, courts, and jurors are not permitted to say what is the proper treatment for a disease or how a specific surgical operation should be performed. This rule, said the court, is not to be considered as a judicial determination that the members of the medical profession have a monopoly on common sense, and is limited only to those matters clearly within the domain of medical science. If, in a given case, the bad results are so pronounced as to be apparent to anyone, and if what was done or not done in the treatment of a patient is so obvious and within the common everyday knowledge of persons generally, such facts may be testified to by persons other than physicians.

The Supreme Court said that the evidence consisted almost entirely of testimony of the pathologist who conducted the postmortem examination and of the attending nurses. All the questions and matters in issue were clearly within the realm of medical science, and, it may be said, there is not one iota of medical evidence to indicate that the defendant physician was guilty of negligence or malpractice in diagnosing or rendering medical care to the deceased. In fact, all the medical evidence affirmatively established that the defendant physician did conform to proper practices and usages in the light of all attendant circumstances. A point is made, said the Supreme Court, of the alleged statement by the defendant physician to the effect that perhaps the life of the plaintiff's wife might have been saved had a cesarean operation been performed. Assuming that such a remark was made, it constitutes no evidence that, under the circumstances and conditions existing prior to her death, and of which the doctor and nurses in the exercise of skill and diligence were well aware, it was negligence and malpractice not to perform a cesarean operation. Insofar as the defendant physician is concerned, concluded the court, matters concerning his professional acts in this case were matters solely within the realm of medical science and no evidence was introduced, expert or otherwise, to make out a prima facie case of negligence and malpractice on his part. Negligence is never presumed—it must be established, and until established by competent evidence, a jury has no function to perform. The plaintiff's evidence not only did not establish negligence it in fact refuted it.

So far as the liability of the defendant hospital is concerned, the Supreme Court said that the general rule is that a private hospital must exercise toward a patient such reasonable care as his known condition may require, the degree of care being in proportion to his known physical and mental ailments. Up until the actual time of delivery, said the court, there was absolutely nothing about the patient's condition to indicate there was anything unusual or abnormal about her case, or that it differed from any of the thousands of obstetric cases handled by the qualified and experienced nurses in attendance. In other words, so far as the patient's condition was known to the hospital and nurses, it was just another obstetric case, and there was no evidence to indicate or establish that she was not ministered to and cared for in the customary routine manner as her known condition required and demanded. Medical evidence was to the effect there was nothing abnormal about a transverse delivery and that very frequently external pressure is applied to the abdomen at the time of delivery.

As is the case with a physician, negligence against a hospital is never presumed, it must be established. Since the plaintiff's evidence did not establish negligence against either the physician or the hospital, the trial court was correct in granting the defendants' demurrer and that action was affirmed. *Goheen v. Graber, 309 P(2) 634 (Kansas, 1957).*

Revocation of License for Violation of Income Tax Laws.—This was a petition for a writ of mandamus to compel the review of an order of the Board of Medical Examiners, suspending the petitioner's license. From a judgment for the board the petitioner appealed to the district court of appeal, second district, division 1, California.

An accusation was filed with the board charging that the petitioner had been guilty of unprofessional conduct contrary to the Business and Professions Code, in that he was convicted of two felonies and criminal offenses involving moral turpitude. He had been convicted, following his plea of *nolo contendere,* of having wilfully and knowingly attempted to defeat and evade a large part of his federal income tax for 1947 and 1948. The board found that he had been convicted of the felonies in question and suspended his license for one year.

Section 2383 of the Business and Professions Code, as amended in 1951, provides: "The conviction of a felony, or of any offense involving moral turpitude, constitutes unprofessional conduct within the meaning of this chapter. The record of the conviction is conclusive evidence of such unprofessional conduct. A plea or verdict of guilty or a conviction following a plea of *nolo contendere* made to a charge of a felony or of any offense involving moral turpitude is deemed to be a conviction within the meaning of this section. . . ." The petitioner contended that a conviction of a felony, not involving moral turpitude, based on a plea of *nolo contendere,* is not a ground for disciplinary action against a physician. The court said that it is abundantly clear that the legislature intended that the conviction of a felony in and of itself, without any qualifications, constitutes unprofessional conduct. It is also clear that an "offense involving moral turpitude" does not necessarily have to be a felony. The record of conviction is conclusive evidence of the questioned conduct and by the very terms of the section a "plea of *nolo contendere* made to a charge of a felony or of any offense involving moral turpitude" is deemed to be a conviction within the meaning of the section. Other contentions of the petitioner were also overruled and the board's ruling suspending the petitioner's license for one year was accordingly affirmed. *Furnish v. Board of Medical Examiners, 308 P. (2d) 924 (Calif., 1957).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Syndrome of Relief of Angina Pectoris Following Myocardial Infarction. J. D. Matis and H. A. Solomon. Dis. Chest 31:622-633 (June) 1957 [Chicago].

Relief from severe and often intractable angina pectoris occurred after acute myocardial infarction in 7 men between the ages of 43 and 54 years. In the first 2 patients the angina pectoris became more intense after the first attack of myocardial infarction but was relieved after the second attack. In the 3rd patient the myocardial infarction afforded relief from angina pectoris which had been present for 4 years. There also was evidence of increased coronary reserve in that the patient was able to increase his activities greatly. Death, however, resulted from a new coronary thrombosis 2 years later despite the patient's apparent well-being. The 4th patient was able to return to his occupation as a salesman and did no longer have any chest pain with effort, 2 months after acute myocardial infarction. Because of increased endeavor his earning capacity 3 years after the infarction was greater than that of any previous year. The 5th patient obtained relief of chest pain after myocardial infarction. He remained completely active and without symptoms for 3 years, when death occurred suddenly while he was walking. The last 2 patients attended to their business without symptoms 3 and 6 months, respectively, after the myocardial infarction.

While these patients showed varying clinical manifestations and varying localization of the cardiac lesions, there was the common experience of relief from chest pain after acute coronary artery occlusion. Whether this relationship indicates a better life span remains to be studied. The likely explanation for the relief is that compensatory collateral circulation had developed during the period when angina pectoris was present. In addition to the concept of increased collateral circulation after narrowing of the coronary arteries, it has been theorized that transformation of an ischemic myocardial area into scar tissue might prevent the origin of painful stimuli. The latter concept seems less likely, because functional capacity after myocardial infarction was relatively good in the described patients.

Treatment of Cardiac Edema Resistant to Mercurial Diuretics. K. Mellemgaard. Ugesk. læger 119:641-647 (May 23) 1957 (In Danish) [Copenhagen].

In 6 of 12 patients with grave cardiac decompensation, electrolyte displacements afforded a probable explanation of the lack of response to mercurial diuretics. In the other 6 patients the electrolytes in the plasma were normal, but most often with serum chloride values in the lowest part of the normal range and total carbon dioxide values in the upper part. In all cases sensitivity to mercurial diuretics was restored by oral treatment with acetazolamide, with simultaneous development of a hyperchloremic acidosis or electrolyte displacement in this direction. After the decompensation disappeared, continued ambulant treatment was established in all the patients by alternating administration of thiomerin and acetazolamide or ammonium chloride. In all, continued compensation was attained in from 1 to 16 months. Three patients died without recurrence of the decompensation, 3 had recurrence in spite of the treatment, and 1 of these died from heart failure. In 1 case treatment had to be discontinued because of increasing uremia. Five patients continued well compensated during the treatment. When ammonium chloride was substituted for acetazolamide in 11 patients the effect was unchanged in 9, but there were considerable side-effects in 4 of these; in 2 patients treatment was stopped at once because of nausea and vomiting. No side-effects of acetazolamide were seen.

Two-Year Experience with Radioactive Iodine Treatment of Thyrotoxicosis. A. A. Atabek. Klinicheskaya med. 35:97-105 (April) 1957 (In Russian) [Moscow].

The authors treated 600 severe cases of thyrotoxicosis with radioactive iodine (I^{131}). Three hundred sixty patients were followed up for 6 months to 2 years after the termination of the treatment. There were 318 women (88.6%) and 41 men (11.4%). The patients selected for this treatment were those with severe types of thyrotoxicosis, those who were treated persistently with iodine preparations and with methyluracil without improvement. Twenty-six of these patients had recurrences after a thyroidectomy. After the follow-up of 6 months to 2 years, there was a complete disappearance of symptoms in 327 (90%). Sixteen patients (4.5%) developed a hypothyroid

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The place of publication of the periodicals appears in brackets preceding each abstract

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state; 12 patients (3.3%) presented only mild symptoms of thyrotoxicosis. The cure was accomplished in 184 patients by a single dose of I^{131}, in 109 patients after 2 doses, in 25 after 3 doses, in 8 after 4 doses, and in 1 patient after 5 doses. In 12 patients there was failure to accomplish a complete disappearance of symptoms of the disease despite repeated administration of the I^{131}. The majority of the patients showed improvement in the symptoms in 3 weeks after the treatment was begun. Occasionally the improvement did not manifest itself before 4 or 5 weeks had passed.

Treatment with I^{131} is indicated in severe forms of thyrotoxicosis when operation is contraindicated because of a decompensated heart, liver involvement, thyrotoxic psychoses, postoperative recurrences, and advanced age of the patient. Treatment with I^{131} leads in 90% of the patients to diminution or to complete disappearance of the goiter and of the exophthalmos and to increase in weight, disappearance of tachycardia, and return to normal formula of the peripheral blood.

Test For Interatrial Communication. G. de J. Lee and T. M. D. Gimlette. Brit. M. J. 1:1279-1281 (June 1) 1957 [London].

The present paper describes a test which depends upon being able to alter the pressure within each atrium separately. It enables the clinician to arrive at a firm diagnosis for the otherwise symptomless patient with atrial septal defect. At rest, the net right atrial pressure was found to be 2-4 mm. Hg below the net pulmonary capillary pressure in normal individuals. Since the pulmonary capillary pressure and left atrial pressure in man are almost identical, a differential pressure relationship is thus established between the left and right atriums. These pressure differentials exist in small atrial defects but not in larger atrial defects where pressure tends to become uniform throughout as the atriums perform as a single chamber. With an oximeter earpiece used to record percentage oxygen arterial saturation and with brachial artery and intrathoracic pressures simultaneously recorded, the patient is asked to execute Valsalva's maneuver. This consists of blowing a mercury column to a height of 50 mm. for a period of 10 to 15 seconds. The patient repeats this maneuver after exercising against 2 car foot pumps. Patients who showed negative responses to the Valsalva tests were asked to perform the reverse precedure, i. e., the Muller maneuver. Finally, the patient's legs were raised during a continuous oximeter recording.

Should an atrial septal defect exist, then a right-to-left shunt of desaturated blood occurs across the defect due to the increased net right atrial pressure precipitated by the release of the previously engorged systemic veins. The Valsalva test was positive in all 12 patients where the diagnosis of atrial septal defect had already been proved. In one of these patients, the test was negative at rest but positive following exercise. Fourteen additional patients with evidence of left-to-right shunts gave positive Valsalva tests. The test was negative in only 2 cases of atrial septal defect. These 2 patients had large atrial septal defects and congestive cardiac failure at the time of the test. In very large atrial septal defects and in heart failure, there is no fall in brachial artery pressure but rather a square wave type response to increased intrathoracic pressure. The test has been negative only in the small number of patients studied with left-to-right shunts from causes other than interatrial communication.

A Curious Disease: Carcinoid of the Small Intestine with Hepatic Metastases and Cardiovascular Complications. R. Picard and J. P. Kerneis. Semaine hôp. Paris 33:2117-2123 (May 30) 1957 (In French) [Paris].

Intestinal carcinoids may appear in any part of the gastrointestinal system, even the stomach and the duodenum, but their favorite sites are the appendix, 65% of the cases, and the ileum, about 25%, the next most frequent site, the rectum, being affected in only about 10%. The character of the tumors varies greatly with their location: those found at the level of the appendix are usually benign and practically free from metastases, those in the rectum are accompanied by metastases in about 13% of the cases, but those in the ileal portion of the small intestine are potentially malignant if judged by the frequency with which they metastasize (30 to 50%). "Malignancy," however, is almost a relative term as applied to carcinoids, since in some patients incomplete operations in which metastases were left have been followed by 20-year survivals, while in other exceptional cases carcinoids may develop rapidly after the manner of carcinomatous tumors of the intestine. Neither the histological nor the cytological appearance of carcinoids provides any clue to their benignity or malignity.

Interest in the study of carcinoids was revived by the discovery of the hormone secreted by the Kultchisky cells. This hormone, Enteramine, which has the same chemical composition as serotonin, is probably responsible for an unusual syndrome of vasomotor disturbances and endocarditis that has recently been observed in patients with ileal carcinoids accompanied by extensive latent hepatic metastases. The first 4 cases of this syndrome were reported in 1952 by physicians in southern Sweden. Reports of additional cases have since been published in various other countries, bringing the world total to 30. The vasomotor syndrome is characterized by violent congestive crises in which the patient suddenly feels a tension and stinging heat in the skin and face. He is oppressed, anxious, and nauseated; weakness forces him to lie down, and he may even faint. Simultaneously, brick red, violet, or pallid spots appear, especially on the face but extending also to the trunk, the abdomen, and the limbs. This is the so-called "flush," and it is so characteristic that a diagnosis of carcinoid, later verified at operation, has in several cases been

ed on its appearance. These vasomotor attacks,
ch occur at the rate of from 4 to 25 a day, from
4 times a week, are accompanied by tachycardia
often by diarrhea and dyspnea. The cardiac syn-
me is no less extraordinary, consisting of endo-
litis of the right side of the heart with narrowing
he pulmonary artery and, often, tricuspid insuffi-
icy. These cardiac manifestations, which almost
ays occur in patients with long-standing latent
atic metastases, are apparently due to the enor-
isly increased amounts of serotonin found in these
ents. The antagonists of serotonin are, therefore,
ig intensively investigated in the attempts now
ig made to find a remedy for this extraordinary
dition.

ersplenism in Geriatrics. S. O. Schwartz and W. H.
tz. J. Am. Geriatrics 5:398-403 (April) 1957 [Balti-
e].

ypersplenism is a vague and poorly understood
i which implies abnormal splenic activity with a
ilting diminution of some or all of the cellular
nents of the blood. The mechanism is unknown,
none of the theories advanced to explain the con-
on has received universal acceptance. The con-
t of splenic inhibition of the release of cells from
marrow has been adopted by the authors because
ffords a simple approach to the problem. The
none theory, which is predicated on the regula-
by the spleen of the red blood cell, white blood
(granulocyte), and platelet levels, explains the
iction in cellular elements in the blood of patients
i enlarged spleens on the basis of overproduction
he splenic "hormone." This extensive regulation
xcessive splenic "hormone" would also account for
accumulation in the marrow of the normal pre-
sors of those elements lacking in the blood. The
cal conclusion, that splenectomy will correct the
iatologic conditions in hypersplenism, is borne out
ically. More detailed characteristics of the hyper-
nism syndrome include anemia, granlocytopenia,
thrombocytopenia either singly or combined. The
xistence of all 3 is termed pancytopenia. The de-
e of reduction of the cellular elements in the blood
iot a function of the size of the spleen, and the
erity of reduction is usually out of proportion to
which might be expected from the underlying
ase alone. Anemia is usually normochromic or
mocytic, mild to moderate degrees prevailing. The
ercellular marrow may further be involved by
nuloma, lipoid reticulosis, or lymphoma and leu-
iias. The spleen may vary in size from a just-
pable 250 Gm. to huge enlargement. Splenomegaly
be due to reticuloendothelial hyperplasia, con-
tion (splenic vein hypertension or splenic vein ob-
ction), local disease (sarcoid, lymphoma, and
dgkin's disease), infection (bacterial endocarditis,
ctious mononucleosis, rheumatoid arthritis, tuber-
osis, and malaria) or generalized disease (Gaucher's disease, lupus erythematosus disseminatus, leukemia, hemolytic anemia, Hodgkin's disease, and myeloid metaplasia). Hypersplenic manifestations may be relieved by treatment of the underlying disease, and the ultimate prognosis is dependent on such treatment as splenectomy. Although the immediate prognosis is good, it does not affect the underlying disease.

Hyperostosis Generalisata of Camurati-Engelmann Type. J. Roth. Harefuah 52:223-229 (May 1) (In Hebrew with English Summary) [Tel-Aviv, Israel].

An 18-year-old boy, an immigrant from Iraq, was found to have the rare generalized hyperostosis of the Camurati-Engelmann type. This disease involves the entire skeleton and muscles. The main symptoms are headache, pain in the extremities, and general weakness. The main pathological picture is hyperostosis and osteosclerosis. These cause symmetrical changes in the whole bony skeleton, especially of the skull and the extremities. The obvious thickening of the bones together with the endostosis brings about crowding out of the bone marrow. These changes effect only the diaphyses and not the epiphyses and the metaphyses of the bones. In the boy presented, the progress of the disease in the bony skeleton was followed with x-ray examinations over a period of 2 years. The physical examination revealed hepatosplenomegaly. There were no pathological blood changes. Examination of his family established that the disease is congenital and familial (3 generations of the family affected) and of a dominant inheritance. This disease as well as hyperostosis generalisata diffusa with pachydermia are congenital diseases, and both originate from disturbances in the development of the mesenchyma. Another theory is that sclerotic changes in the vessels of the bones and muscles are the cause of the disease.

Acute Porphyria. J. W. Fischer. Illinois M. J. 111:313-315 (June) 1957 [Chicago].

The author discusses the various types of porphyrins and of porphyria and shows that acute porphyria is in reality a chronic condition characterized by exacerbations and remissions over a period of time ranging from a few months to many years. The disease occurs in families, affects twice as many females as males, and is most common between the age of 20 to 40 years. The attack may manifest itself by abdominal or neurological symptoms. Between attacks the patient may be symptomless or suffer from ill-defined complaints such as vague abdominal pain, bizarre pain in the extremities, insomnia, depression, and weakness. The paroxysms of abdominal pains are in the nature of colic. This is frequently accompanied by nausea and vomiting and slight fever. Jaundice may occur. In women, attacks may be associated with menstruation. The pain is difficult to control and often worse at night. Spasms and rebound tenderness are not common. The leukocyte count may be normal or elevated. It is obvious that the condition may mimic appendicitis, biliary or renal colic, intestinal obstruction, or pancreatitis. It is, therefore, not surprising that these patients are often operated upon, and a "battle-scarred" abdomen attests to the obstinacy of this disease.

Mental symptoms may develop at any time in the course of illness. These are frequently simple emotional states, irritability and fatigue. Confusional, hallucinatory, or psychotic behavior may occur. The cardiovascular system is frequently involved, giving rise to hypertension, tachycardia, and electrocardiographic abnormalities. The diagnosis of porphyria should be borne in mind in any obscure nervous disturbance or ill-defined acute abdominal condition, particularly when they occur concurrently. Examination of recently passed urine is of major importance; this can be screened for porphobilinogen by the simple test devised by Watson and Schwartz. Patients with porphyria, like diabetics, should have on their person a written statement concerning their diagnosis so as not to lead the unwary surgeon to perform useless operations. Toxic agents, especially barbiturates and alcohol, should be avoided by these patients.

The Effects of Cortisone and Hydrocortisone on Water Diuresis and Renal Function in Man. L. G. Raisz, W. F. McNeely, L. Saxon and J. D. Rosenbaum. J. Clin. Invest. 36:767-779 (June, pt. 1) 1957 [New York].

The deficient diuretic response to water characteristic of patients with adrenal insufficiency can be rapidly corrected by the administration of cortisone. A number of observations, chiefly in experimental animals, suggested that administration of various adrenocortical preparations in large "pharmacological" doses also influences water diuresis in the normal organism. The present report describes the effects of large doses of cortisone and hydrocortisone on water diuresis, renal solute excretion, glomerular filtration rate, and effective renal plasma flow in adult male patients free from cardiovascular, renal, and endocrine disease. Three sets of studies concerning water diuresis were carried out.

The rate of urine flow observed during a maintained water load was regularly greatly increased during steroid administration irrespective of changes in the dietary intake and renal excretion of sodium salts. Serial studies in subjects on a salt-poor diet demonstrated an increase in maximal urine flow and in free-water clearance. The increased excretion of water was usually but not invariably accompanied by a small increase in sodium excretion, a gain in body weight, and sometimes by an increase in total solute excretion. The small rise in glomerular filtration rate noted during steroid administration did not parallel the increase in maximal urine flow. A single intravenous infusion of hydrocortisone regularly produced an increase in glomerular filtration rate, but without a consistent increase in the diuretic response to water loadi
The observations indicate that continued administr
tion of steroid in large doses influences the re
tubular reabsorption of water. It is suggested th
more free water is made available for excretion be-
cause of (1) a redistribution of solute reabsorption be-
tween proximal and distal systems or (2) an alterati
in the permeability of the renal tubular epitheliu
to water.

Contribution to the Knowledge of Acute Staphylococcic Enteritis Caused by Treatment with Antibiotics. M. Bassi and L. Gangitano. Sett. med. 44:501-505 (Oct. 15) 1956 (In Italian) [Florence, Italy].

The cases of 3 patients with micrococcic (staphylococcic) enteritis caused by treatment with antibiotic
are reported. The first patient, an 18-year-old femal
received treatment with antibiotics after being operated on for gangrenous and perforated appendici
The second patient, a 16-year-old male, receive
treatment with antibiotics after being operated on f
acute appendicitis. The third patient, a 17-year-o
male, received treatment with antibiotics because of
violent abdominal contusion incurred in a fall from
motorcycle. All patients had diarrhea. Pain in th
epigastrium or shock were not present before th
onset of diarrhea. The patients presented a choler
like syndrome with circulatory collapse, fast an
severe dehydration, and positive finding of Micrococcus pyogenes var. aureus. The symptoms occurre
after the administration of 1 million Oxford units o
penicillin, 8 Gm. of streptomycin, 2.4 Gm. of Terramycin, and 3 Gm. of chloromycetin given by parenter
route in the first patient; the administration of 1
Gm. of Terramycin, 500,000 units of penicillin, an
22 Gm. of sulfaguanidine in the second patient; an
after the administration of 2.4 Gm. of terramycin i
the third patient. The first two patients died and th
third survived. The first patient lived 4 days after th
appearance of the symptoms, the second patient
days. The condition of the third patient returned t
normal 5 days after the appearance of the symptom
The authors think that the syndrome was fatal in th
first two patients because these patients at the tim
they contracted enterocolities already had a seve
toxic infection and anaerobic germs. The general condition of the third patient was good at the time h
contracted enterocolitis.

SURGERY

Mild Rheumatic Carditis and Mitral Commissurotom
P. A. Kupriyanov, S. A. Gadzhiev and T. G. Bliestkin
Khirurgiya 33:26-32 (No. 5) (May) 1957 (In Russia
[Moscow].

The authors report on 126 patients who were subjected to a mitral commissurotomy. Rheumatic card
tis was suspected in 38 patients, while 88 patien
presented no clinical manifestations of carditis befo

operation. The histological study of an excised tion of the left auricle was carried out on all of operative patients. Signs of active rheumatic cess were demonstrated in 53 patients; 37 of these l Aschoff nodes, while in 16 there were present irect manifestations of the rheumatic carditis, such nonspecific infiltration of the interstitial tissue. icerbation of the rheumatic carditis in the postrative period was noted in 18 patients (14.3%); in 9 these the process was mild and had no effect upon general condition of the patient; in 9 patients a gressive course of rheumatic carditis was noted. e authors conclude that a mild rheumatic carditis ich does not yield to medical therapy does not istitute a contraindication to mitral commissuroty. Adequate enlargement of the atrioventricular fice improves circulation and leads to healing of the umatic carditis. Surgical treatment of mitral steno- in the presence of a mild carditis must be comied with active antirheumatic medical treatment. acerbation of the rheumatic carditis in the posterative period is more severe in the younger pants. As a rule, proper therapy, which consists of iibition of salicylates, corticotropin, antibiotics, and orbic acid, in the presence of adequate widening the ostium venosum, leads to healing. The active ocess subsides in the course of several weeks. Abice of clinical manifestations of rheumatic carditis fore the operation, as well as of histological data, es not guarantee against exacerbation of rheumatic rditis after the operation.

oplastic Disease of the Spinal Extradural Space: A view of 50 Cases. J. Mullan and J. P. Evans. M. A. Arch. Surg. 74:900-907 (June) 1957 [Chicago].

Fifty patients with spinal extradural tumor were ated by laminectomy and postoperative radiothery. Fourteen of the 50 patients had local tumors ising primarily in the spinal extradural space, in the ne, or spreading into the extradural space through e intervertebral foramens from the chest. Of the reaining 36 patients, 15 had reticular tumors and 21 id metastatic tumors. Six patients had a second eration, giving a total of 56 procedures. The results ere considered as good or excellent in 16 patients 2%), moderate in 13 (26%), and fair in 7 (14%); 14 itients (28%) were therapeutic failures. Causes of ilure were degree of malignancy, degree of damage the spinal cord before the operation, and errors of irgical judgment and of technique. Best results were btained in patients with the simpler radiosensitive imors; next most favorable were those in patients ith the reticular tumors, and least favorable were iose in patients with metastatic neoplasms.

Investigation, preferably by myelography, of each ase of suspected spinal extradural tumor is urged. atients in whom the histological appearance of the imor is unknown may be given radiotherapy under lose neurological observation where myelographic block is incomplete. If the pathology is known and the tumor is radiosensitive, radiotherapy should be given, provided that pressure on the cord is minimal. Urgent decompression and postoperative irradiation are indicated in all patients in whom compression is present and the tumor is insensitive to x-rays, or when the diagnosis is unknown, or even in those with radiosensitive tumors associated with marked neurological signs. The need for operation is urgent in the presence of spinal cord involvement, and time must not be wasted in prolonged investigation of a suspected primary lesion. It is difficult to say in the presence of complete paraplegia when it is too late to offer help, as good results were obtained in 1 patient after 2 months of paraplegia. None of the 6 patients who underwent a second operation obtained satisfactory results.

Use of Hypothermia in Intracranial Tumours. J. M. Inglis. Brit. M. J. 1:1335-1337 (June 1) 1957 [London].

Hypothermia has been found to be of undisputed value in cardiac surgery when temporary occlusion of one or more of the great vessels is required, in cerebral surgery when the main arteries supplying vital structures are occluded, and when a period of prolonged induced hypotension is desirable. Reduced body temperature subserves a protective function of vital organs by means of metabolic depression with reduced vulnerability to anoxia. Operative intervention in the brain stem is characterized by high postoperative mortality, and, although the reason for death is generally not clear, the hypothermia is of value in protecting the cells of the brain stem and diencephalon during operative procedures. Such a point is in need of statistical evidence which is not possible until larger numbers of cases are available. Two patients with craniopharyngioma, both of whom had displacement of the third ventricle, had the tumor completely removed surgically under hypothermia with the Birmingham hypothermia unit; they had an excellent postoperative course.

Conservative Surgery in Essential Facial Neuralgia. J. Guillaume and G. Mazars. Presse méd. 65:925-926 (May 18) 1957 (In French) [Paris].

Decompression of the trigeminal nerve by the extradural route was used by the authors with excellent results in 40 patients with essential facial neuralgia treated in 1954 and 1955. The operation can be performed with safety even in the oldest patients; it does not interfere with normal buccal and facial sensitivity; and it does not lead to ocular complications or masticatory difficulties. Relief from facial pain was obtained immediately in all but 4 of the patients, in whom slight rubbing of the trigger zone still elicited a few not very painful twinges for from 1 to 5 days after the operation. Transient recurrences of mild pain were noted by 3 patients 6, 12, and 14 months after operation, but only 1 patient had a genuine, lasting relapse. Paresthesias, which appeared in 5 patients, were variously described as "stiffness of the chin," "swelling of the lip," or "pinpricks on the cheek," but they were infrequent and much less disturbing than those observed after operations in which the nerve is severed.

The only objection that can be advanced against a decompression operation seems to be the possibility that the neuralgia may return at a later date. This objection cannot be definitively answered at present, because the number of patients who have had the conservative operation is not yet large enough, nor is the follow-up long enough, to provide the information needed for such an answer. It may be pointed out, however, that, if pain should recur after decompression of the nerve, neurotomy can still be performed. Neurotomy also retains its usefulness in certain atypical forms of neuralgia and in cases in which decompression cannot be satisfactorily accomplished, as for instance in patients in whom the Gasserian ganglion has been infiltrated with alcohol. The advantages of the decompression procedure for patients with essential facial neuralgia, however, are such that it should always be proposed first.

Surgical Management of Aortic Stenosis: An Evaluation of Techniques and Results. C. P. Bailey and W. Likoff. A. M. A. Arch. Int. Med. 99:859-886 (June) 1957 [Chicago].

There exist 3 distinctive individual methods for the surgical modification of aortic stenosis or closely allied disturbances at the outflow tract of the left ventricle. Transventricular and transaortic commissurotomy are closed-heart techniques, while the third and more recent procedure is the open-heart method, which involves the many principles and problems peculiar to open heart surgery as well as those related to mechanical valvular mobilization. Two hundred eighty-one patients with major aortic stenosis treated surgically by closed heart techniques were divided into 2 categories. Group 1 included those patients subjected to aortic commissurotomy for aortic stenosis alone, or in combination with other adynamic physiologically "insignificant" lesions, i. e., minor degrees of aortic regurgitation. Group 2 consisted of patients who required simultaneous aortic and mitral commissurotomies for coexisting stenosis of both valves either alone or in combination with other minor valve lesions. Group 1 patients had dyspnea (86.5%), fatigue (78.7%), pain of coronary artery insufficiency (48.2%), vertigo and syncope (30%), peripheral edema and other manifestations either alone or in combination (30%), and acute paroxysmal dyspnea (21.3%). The average duration of each major symptom in group 1 patients was less than one year, in contrast to the 4-year duration of major complaint in the group 2 patients. In the latter group, vertigo and syncope occurred less commonly and paroxysmal dyspnea more frequently, dyspnea and fatigue persisting as the most common complaint. Normal sinus rhythm was present in all but one of the patients with uncomplicated aortic stenosis, atrial fibrillation occurring in 47.7% of the patients with coexisting mitral stenosis. Increased x-ray size of the heart (2+) and a decreased second aortic sound were found in most patients in both groups. Clinical manifestations in patients with combined aortic and mitral stenosis resemble those of the latter disease much more than the former. Group 1 is further differentiated from group 2 in that left ventricular hypertrophy (60.6%) and complete left bundle-branch block are associated with the former group, while left bundle-branch block did not occur in the latter group. Surgery for aortic stenosis is not indicated when the aortic valve pressure gradient is less than 40 mm. Hg, save for some few patients with combined aortic and mitral stenosis.

The operative mortality rate for all patients in group 1 treated by a transventricular commissurotomy was 26.9% and by transaortic commissurotomy 16.4%. No deaths resulted where mitral and aortic stenosis coexisted as so-called "pure" lesions. In group 2 the mortality rate of all patients operated on via the transventricular method was 17.6% and of those operated on via the transaortic route 8.3%. Age was an important factor in the mortality rate in group 1, while increased heart size exerted a detrimental influence on both groups. The most dramatic postoperative improvement was observed in the symptom triad of angina, vertigo, and syncope, while the symptoms of fatigue, exertional dyspnea, and edema either disappeared or lessened considerably. Only 1 of the 11 patients subjected to open-heart commissurotomy died (ventricular fibrillation during surgery). Postoperatively, open-heart operations have had good results clinically, and in no patient has there been any suggestion of creation of valvular incompetency. The percentage of patients improved and the degree of subjective benefit obtained are not extended appreciably by the transaortic method in contradistinction to the transventricular technique. The open technique with use of a heart-lung bypass and retrograde perfusion of the coronary sinus, is advocated in all operative cases of congenital aortic stenosis and in most cases of extensive calcification of the aorta, as this technique routinely allows maximal relief of impedance without decreased valvular competence.

Electrical Ventricular Defibrillation: The Relationships Between Epicardial Burns and Late Mortality. A. B. Kortz and H. Swan. A. M. A. Arch. Surg. 74:911-917 (June) 1957 [Chicago].

Thirty dogs subjected to hypothermia, bilateral transsternal thoracotomy, and right ventriculotomy were divided into 4 experimental groups according to the agent or agents which they received to inhibit ventricular fibrillation, i. e., bethanechol chloride alone, Ambonestyl (2-diethyl-aminoethyl isonicotinamide) alone, Ambonestyl combined with bethanechol, a control group the members of which did not eive any pharmacological protection. Evaluation the mortality within the respective groups sug- sted a division of the whole series into 2 broad egories according to whether fibrillation had or not occurred at some time during the operative cedure. Of the 16 dogs that had fibrillation, de- rillation was achieved successfully in 15, but 11 of se died during the 7-day survival period. This resented a successful defibrillation of 94% but a e mortality of 74%. Of the 14 animals in which re was no fibrillation, all were living and well 7 s postoperatively. The high "late mortality" in gs in which "successful" defibrillation was accom- shed was considered to result from the method of fibrillation rather than from the arrhythmia itself. sidual epicardial burns over the lower left ventricle d cardiac apex were present frequently after elec- cal defibrillation. The late postoperative mortality s reduced from 74% to 10% in an additional experi- ental group of 10 dogs in which electrical defibrilla- n was successfully carried out with defibrillator ectrodes the bare faces of which were covered with line solution-soaked gauze sponge, cotton, or felt. Although ventricular fibrillation may be relatively nocuous when properly treated, the authors do not bscribe to the elective production of this arrhythmia ring open cardiotomy. They believe that a regular us rhythm with or without periods of elective car- ac asystole is desirable during intracardiac and tracardiac procedures. If ventricular fibrillation ould supervene, electrical defibrillation is readily ecuted. However, the production of myocardial and icardial burns during this experience may preclude equate cardiac function in the postdefibrillatory riod. Prevention of such burns is achieved by inter- sing saline solution-soaked gauze sponge, cotton, felt between the heart and the defibrillator elec- odes. This technique is not new, but its relation to stoperative mortality may not have been appre- ated previously.

he Diagnosis of Myxoma Cordis: Diagnosis Estab- hed Pre-operatively in Two Cases. F. S. P. Van uchem, J. Nieveen and L. B. Van Der Slikke. Car- iologia 30:353-366 (No. 6) 1957 (In English) [Basel, itzerland].

Myxomas have been observed at all ages and in oth sexes, but especially in persons between the th and 60th years of life, in 75% of whom these mors were located in the left atrium. Small tumors re relatively insignificant, and treatment may be eglected. Larger tumors cause circulatory disturb- nces. The fact that a tumor is mobile to some extent the basis of explanation for the effect of postural hanges on current signs and symptoms. Rapid pro- ression of signs and symptoms and a poor reaction cardiotonics are important diagnostic features. In he patients observed the left atrium was only slightly enlarged and the impression of the esophagus was slight. If the myxoma was of a firm consistency, powerful pulsations of the esophagus could occur synchronously with the ventricular contractions at the level of the left atrium. No esophageal pulsations were visible in a patient in whom the tumor was of a soft consistency while it was situated at a somewhat lower level. Cardiac catheterization shows an increase in pressure in the pulmonary artery and right ventricle. The absence of the characteristic X-dip in the pressure curves of the left atrium is absent in those patients in whom the capacity of the left atrium has been reduced due to the presence of a myxoma. The X-dip also disappears in atrial fibrillation, and a premature systolic peak is found in mitral insufficiency. No physical manifestations of either of the 2 disorders above were found, and no murmurs were audible in the patients. Angiocardiography reveals a gap in the shadow of the atrium.

Local Recurrence of Carcinoma After Anterior Resection of the Rectum and the Sigmoid: Relationship with the Length of Normal Mucosa Excised Distal to the Lesion. E. P. Lofgren, J. M. Waugh and M. B. Dockerty. A. M. A. Arch. Surg. 74:825-838 (June) 1957 [Chicago].

One hundred eight patients with local recurrence of carcinoma after surgical extirpation of a malignant lesion in the sigmoid colon or upper part of the rectum by the abdominal route (anterior resection) with end-to-end anastomosis of the intestine and with or without antecedent or concomitant performance of proximal colostomy to decompress the suture line were studied to determine whether a relationship exists between length of normal mucosa excised distal to the original lesion and the subsequent recurrence of malignant tissue in the proximity of the previously established anastomosis. No strikingly significant relationship was found in a comparison of 97 of the available original operative specimens with lesions of 102 patients who survived for 5 years after anterior resection and served as controls. Among other factors concerned in local recurrence of such lesions, lymphatic invasion in adjacent tissue is of importance, as evidenced by the fact that the incidence of lymphatic invasion among recurrent lesions was 16% higher than it was among nonrecurrent lesions. Yet the results of the study cast doubt on lymphatic invasion as a major factor in recurrence of malignant lesions in this location when it was demonstrated that the incidence of recurrences at the suture line was independent of the presence or absence of invasion of lymph nodes. The fact is noteworthy that the situation of recurrent lesions was closer to the anus than that of lesions among surviving patients.

Incomplete excision of the primary tumor explained 3 recurrences among 98 patients whose original operative specimens were studied macroscopically and microscopically. In 12 of these 98 patients the recurrences were attributed to incomplete excision of the satellite lymphatic or vascular permeation. Potentially neoplastic mucosa, with malignant regeneration, explained 7 recurrences. For the remaining 76 recurrences, all appearing at the line of suture, there was no acceptable explanation after gross and miscroscopic examination of 98 originally excised specimens and 27 recurrent specimens from this group. Although positive evidence that implantation of viable malignant cells into raw tissue surfaces is a major fact cannot be provided, this concept, which has been emphasized by other workers, seems attractive. If valid, it would explain the high proportion of recurrences at the line of suture independent of the presence of metastasis to lymph nodes, the relatively early recurrence of a lesion because of residual malignant tissue after the original operation, and the cause of the slight increase in the incidence of recurrences at the lower levels above the pectinate line. The concept might also explain the slight increase in recurrence of lesions when the length of excised normal mucosa distal to the lesion was small, a factor which in itself would enhance the danger of greater traumatic shedding, with increased density, of implantable viable malignant cells at the time of the original operation. Were this hypothesis acceptable, it could apply to 77% of the local recurrences in this study.

Prolonged and Complicated Forms of Primary Infection of Tuberculosis: Possibilities of Surgery. P. Giraud and H. Metras. Rev. españ. pediat. 13:141-155 (March-April) 1957 (In Spanish) [Zaragoza, Spain].

Primary infection with tuberculosis in a child develops in 2 stages: 1. An early stage, comprising general manifestations, which may become complicated with lymph node or meningitic dissemination. This stage lasts from a few weeks to several months and may be arrested by energetic antibiotic therapy of about 4 to 6 months' duration. 2. A secondary stage, marked by the involvement of the mediastinal lymph nodes, softening, and caseation, particularly in the bronchial tree. This stage, which may last for months and years, is very little affected by the modern therapy. The sequelae are bronchial stenosis; sclerosis and retraction of a lobar or segmental portion with possible bronchial dilatation; residual foci in bronchial or pulmonary lymph nodes which may remain latent for a long time but which are susceptible to reactivation. In some instances the anatomic study discovered a correlation between this lymph node involvement and the ulcerative tuberculosis of young adults. This is verified by bronchoscopy and by the examination of the primary infection of the patient's antecedents. In order to anticipate and to treat these sequelae and possibly to prevent adult tuberculosis, the authors suggest surgical therapy. They performed 50 operations, including ordinary lymph node removal and pulmonary lobar or segmental resection. The immediate prognosis was excellent. The follow-up prognosis, both anatomic and functional, was likewise good. The operat should be performed at a specialized place only wi use of a careful technique, antibiotics, and pr apparatus. A competent anesthetist is essential.

Pancreaticoduodenectomy for Chronic Relapsing Pa creatitis: Metabolic Defects Created by Total ar Subtotal Ablations. P. H. Jordan Jr. and M. I. Gro man. A. M. A. Arch. Surg. 74:871-880 (June) 19 [Chicago].

Six men between the ages of 34 and 63 years wi chronic relapsing pancreatitis, 3 of whom were trea by total resection of the pancreas and the other 3 b subtotal resection, served as subjects for conventio and radioactive absorption studies performed wit 2 months to 5 years after the operation. Pancreat (Viokase), given in doses of 6 Gm. a day, effective reduced the fecal fat and nitrogen losses that result from inadequate external secretion of the panc. The improvement in nitrogen balance which was a ciated with the administration of Viokase was n always commensurate with the degree of impro ment in nitrogen absorption. Radioactive iodine (I^{13} labeled triolein and radioiodinated serum albu (human) (RISA) were useful tools for the study of and protein absorption. Analysis of the radioacti of the stools was a more reliable index of absorpt than was the radioactivity of the blood. Absorption I^{131}-labeled oleic acid was significantly greater th the absorption of triolein. The importance of t observation as a therapeutic measure is unknow Iron-absorption studies with Fe^{59} were interpreted showing normal absorption of iron in the 3 patie with total pancreatectomy and increased absorpt of iron in 1 patient with subtotal pancreaticoduod ectomy.

Subtotal and total pancreaticoduodenectomy a effective forms of treatment for chronic relapsing p creatitis. The choice of total or subtotal pancreate tomy depends on the degree of exocrine and endocri deficiencies that exists as a result of inflammato destruction of the normal architecture of the pancre. If the functional capacity of the pancreas has alrea become severely compromised, resection is a justifia method of treatment, for perpetuation of the dise leads to a more crippling state for the patient th that which exists as a result of resection of the p creas, with postoperative metabolic effects not be significantly greater than the preoperative ones.

Postmortem Homografts in Extensive Burns. B. C Davis. Australian & New Zealand J. Surg. 26:244- (May) 1957 [Melbourne].

Large amounts of skin may be taken from a si donor after death and used immediately or set a in a refrigerator for later use. There is no disfig ment, time loss, or wound care necessary with suc donor. Permission must be obtained from the relati of deceased patients before cutting the homogr

Persons who have died with infective lesions, those with malignant disease, and those who have died more than 6 hours previously without the benefit of efrigeration are not suitable as donors of homografts. The postmortem homografts may be used immediately or may be kept wrapped in penicillin-saline gauze at he temperature of the ordinary household refrigerator. Just how long they will keep is not known, but the author has used with success autografts which have been refrigerated for 14 days.

The history of a 23-year-old man is presented in whom the use of postmortem homografts for the treatment of severe and extensive burns was considered to be life-saving. The fact that he was a healthy young man with a fighting spirit made a tremendous difference. Exposure treatment was ordered for the lower imbs and occlusive dressings for the upper limbs. It s difficult to expose circumferential burns, so Steinmann's pins were inserted into the heel to elevate the imb and thus reduce pressure on the posterior aspect. Estimations of the hemoglobin percentage and bacteriological examinations were made regularly throughout the course of the illness. Intravenous and antibiotic therapy was employed. When homografts are used, it is a good idea to scatter small autografts and pinch grafts between them. By this means, the autografts will be spreading by the time the homografts disintegrate. It is quite difficult sometimes to ell which are autografts and which homografts. The homografts appear viable until about the 3rd or 4th week, when they suddenly disintegrate.

NEUROLOGY & PSYCHIATRY

Methitural in Cerebral Electrotherapy. T. R. Robie. M. Soc. New Jersey 54:272-275 (June) 1957 [Trenton].

Melancholia or depression can generally be counteracted by electroshock therapy. The skeletal fractures which formerly were a major hazard in this form of therapy are now prevented by the use of succinyl choline chloride (Anectine). Succinyl's paralyzing effect endures for only 2 minutes. It is obvious that an anesthetic that endures for only 4 or 5 minutes would be ideal, and such is the case with methitural sodium, which the author used in the form of Neraval. There are minor differences in the method of administering methitural sodium (as compared to other barbiturate anesthetics) which must be followed. The latency period lasts from 30 to 50 seconds after intravenous injection before the anesthesia takes effect. Therefore, it is necessary to use the "two-syringe" technique, since the sense of suffocation from the succinyl would be more than the patient could stand unless the anesthetic had taken effect.

Another significant finding has come to light since methitural anesthesia was adopted routinely for all convulsive treatments. The authors had been observing severe hyperkinetic and loud verbalizing furors following electroconvulsive treatments in some difficult patients who required monthly maintenance treatments. These furors were so severe that restraint straps and chemical sedation were necessary. Since the authors used methitural anesthesia no furor reactions have occurred. They wonder if the fact that larger doses of succinyl can be safely given with methitural anesthesia might be the reason. The authors emphasize the importance of having the oxygen resuscitator available for patients who do not have spontaneous respiratory response from the temporary apnea following the treatment seizure. Often the glum and "melancholy" patient whose repetitive formula is "I just can't go to work" after less than half the necessary course of electroshock treatments has been completed alters his formula to a hearty "I'm anxious to get back to work now!" The need for psychotherapy remains imperative after the course of cerebroelectrotherapy. In all "melancholy" persons there are major mental conflicts requiring resolution.

Statistical Observations on the Distribution of Poliomyelitis Paralysis. M. Valle and M. Fasoli. Arch. ortop. 70:61-67 (No. 1) (In Italian) [Milano, Italy].

The authors report on a statistical study of the distribution of paralysis caused by poliomyelitis in 962 patients from all parts of Italy. A large number of the patients came from rural areas of northern Italy. The tibialis anterior, the gluteus medius, and the gluteus minimus were the muscles most frequently affected. The extensors of the lower limbs were affected frequently by paralysis, the flexors by paresis. The muscles of the arms were affected more frequently by paralysis than by paresis. The number of men was greater than that of women. Babies from 6 months to 1 year old represented the age group most frequently affected by the disease.

Papilledema in Poliomyelitis. H. A. Ladwig, J. H. Murphy, R. E. Murphy and E. O. Burgert. Nebraska M. J. 42:292-294 (June) 1957 [Lincoln].

The authors observed 3 patients with papilledema among 148 patients admitted to the poliomyelitis respiratory center. The histories of these patients are presented. The mechanism accounting for papilledema in poliomyelitis can only be speculated upon. The spinal fluid pressure is elevated in the acute phase in many patients who show no evidence of papilledema. Two things were noteworthy about the patients with papilledema. First, the papilledema was not present at the onset of the illness but rather appeared from 11 days to 5 months after the acute onset. Secondly, the spinal fluid protein level was elevated. This elevation of protein follows the destructive phase of the acute poliomyelitis. It is suggested that the presence of the high protein content in poliomyelitis may contribute to a diminished absorption of the cerebral spinal fluid by plugging the stomas of the arachnoid villi. The result of the slowed absorption is an increase in the cerebral spinal fluid pressure, thus causing the papilledema to occur after the acute phase of the illness. Another factor is presence of hypertension which may be associated with the acute phase of poliomyelitis. Several observers who have studied hypertensive retinopathy have concluded that papilledema is significant only of increased intracranial pressure and never due to local disturbances in the retina. It is suggested that further analysis of the protein content of the spinal fluid might determine whether this is a factor in the production of papilledema after poliomyelitis. One of the 3 patients presented illustrates the occurrence of progressive hypertensive retinopathy associated with poliomyelitis.

Lesions in the White Matter in Acute Poliomyelitis. I. Feigin. Neurology 7:399-403 (June) 1957 [Minneapolis].

The author describes lesions in the white matter of the cord which were revealed by autopsy in a 29-year-old woman, a 10½-year-old girl, and in 2 boys aged 16 and 17 years, respectively, who died of acute poliomyelitis. The most frequent pathological change in the white matter was the occurrence of perivascular lymphocytic infiltrates. In the first 2 patients, who died within 1 week after the onset of symptoms, focal areas of acute inflammation were noted in the white matter, characterized by an infiltration by a few polymorphonuclear cells and a more pronounced proliferation of microglial phagocytes. In 1 of the patients, these lesions involved the wall of a blood vessel and showed inflammatory changes and in 1 patient they showed necrotizing changes. Capillary thrombosis was observed in 1 lesion. Although occurring in patients with severe inflammatory changes in the gray matter and at the same cord levels as these severe changes, the lesions in the white matter were not generally situated adjacent to the gray matter but were more often present near the leptomeningeal surface. The leptomeninges overlying these zones showed inflammatory changes no greater than those noted elsewhere. Although the lesions were small, it is likely the fibers transversing them would be functionally impaired.

In the 2 boys with 10 and 17 days' of duration of the disease, larger lesions of a different character were observed in the white matter. These consisted of areas of marked rarefaction, within which a profound loss of axons and myelin sheaths had occurred. In 1 patient, markedly swollen and degenerated axons could be distinguished. An astrocytic response was negligible, while the microglial reaction was moderate in 1 patient and slight in the other. Inflammatory infiltration was minimal. The nature of these lesions is not entirely clear.

The lesions in the white matter are of much less significance than the severe lesions in the gray matter. It is not surprising that the functional disturbance relating to the lesions in the white matter has escaped clinical attention. Recent clinical reports have ind cated that sensory changes of a type which might b related to such lesions have been observed and th these should be included among characteristic clinica features of the disease.

Clinical Experiences with Meprobamate. H. Lehman and *T. Sirnes. Tidsskr.* norske lægefor. 77:419-4 (May 15) 1957 (In Norwegian) [Oslo].

From August, 1956, up to February, 1957, 67 me aged from 22 to 75 were treated with meprobamat in the psychiatric department for men, Ullevål Ho pital. Meprobamate probably causes fewer and le dangerous side-effects than chlorpromazine and Se pasil. The usual dosage was 1 tablet (0.4 Gm.) meprobamate 3 or 4 times daily. The duration of th treatment was from 1 to 86 days, with an average 26 days. The symptomatic effect was good in 17 of cases of neurosis, in 10 of 18 cases of alcoholism, n comania, and combined alcohol and drug abuse, a in 4 of 10 cases of psychic unrest in the postpsycho stage. Important side-effects were observed in only case, in a nonallergic patient, in whom itching e thema occurred after the first tablet. Meprobamate seldom effective in manifest psychotic conditions a in deeper neuroses. Earlier results and personal e perience indicate that meprobamate can be given a sedative simultaneously with electroshock. Chl promazine and Serpasil are regarded as contrain cated during electroshock treatment. Meprobamate especially suited for application in milder neuro reactions, where anxiety, depression, and muscul tension predominate; in the abstinence stage in alc holism and narcomania; for rest symptoms after ps choses; and for insomnia.

Clinical Aspects and Therapy of Poliomyelitis. Henckel and M. Hertl. München. med. Wchnsc 99:808-811 (May 31); 847-850 (June 7) 1957 (In Ge man) [Munich, Germany].

The authors report clinical observations on 83 ch dren who were hospitalized for poliomyelitis duri an epidemic in 1954. Twenty-three of the childr presented the symptoms of serous meningitis, and most of these 23 children the diagnosis of poliomy litis was only probable, because the authors were n able to ascertain the complement fixing antibodi They were able to rule out choriomeningitis, infecti with Coxsackie viruses, and leptospiroses. The clinic aspects were typical of poliomyelitis. In a few of th 60 children with paralytic forms only reflex chang could be ascertained, but most of them had severe forms that required long and intensive orthopedic treatment. Twenty-six children had spinal forms of paralysis. Ten children with the paralytic forms had spinal involvement at a high level. They had paralysis of the upper arm, of the neck muscles, and in the region of the 11th cranial nerve. In 2 of the children spinal forms of paralysis were associated with involveient of the bulbar-pontine region. Isolated paralysis f a single cranial nerve occurred in 14 children, inolvement of the facial nerve being particularly freuent.

The authors give particular attention to 3 therapeuc measures: the injection of gamma globulins during ie preparalytic stage, the administration of vitamin B$_{12}$, and the use of dehydrating measures (osmotherapy). The effect of gamma globulin on the prevenon of paralysis was demonstrated on large numbers f patients in the United States. They themselves gave amma globulin to 28 children with meningeal sympoms; 22 of these remained free from paralysis, wheres in 6 more or less severe forms of spinal paralysis eveloped one or two days later, the regression of which was about the same as in children who had ot been protected with gamma globulin. The authors ave vitamin B$_{12}$ by injection and orally to 38 of their atients with paralytic signs but were unable to eproduce the favorable results reported by others. Particular stress is put on osmotherapy by intensive ehydration with hypertonic solutions of glucose, Venotasin (extract of horse chestnut), mersalyl sodium Salyrgan), acetazolamide (Diamox), and the withrawal of fluid. Intensive dehydration proved espeially effective in the severest forms of poliomyelitis. This form of treatment proved effective again in 1956 n 4 children with severe bulbar-pontine forms of oliomyelitis with paralysis of deglutition. All of these hildren recovered.

GYNECOLOGY & OBSTETRICS

Diamox in Edema of Pregnancy. E. Balthrop and . M. Young. J. Florida M. A. 43:1201-1203 (June) 1957 [Jacksonville].

Of 323 obstetric patients, 38 with sodium retention nd edema of pregnancy were given 500 mg. of acetazolamide (Diamox) daily and were placed on a diet restricted in sodium. The remaining 285 patients with normal pregnancy did not receive acetazolamide. Seventeen of the 38 patients were therapeutic failures. Eighteen patients were benefited in that the potenially toxic or preeclampsic state was controlled. Thireen were greatly relieved of edema, and 5 were elieved completely. Three stopped loosing albumin n the urine, and 1 obtained remarkable relief from hypertension. Those patients who were weighed 48 hours after the beginning of administration of acetazolamide experienced maximal measurable loss in weight. This observation was instrumental in devising the 48-hour acetazolamide test to evaluate the sodium retention of the potentially toxic pregnant patient. The patient is instructed to restrict sodium intake; then she is weighed, given acetazolamide, and weighed again after 48 hours. A loss in weight of 2% of the total body weight indicates that further acetazolamide therapy is justified.

There is an increased reabsorption of sodium and water in the pregnant woman. This normal process is exaggerated in the preeclampsic or toxic state and is at least part of the cause of the eclampsia. Control of sodium and water excretion is therefore partly the answer to the control of eclampsia. Acetazolamide is a potent drug to increase sodium excretion in those patients who are potentially toxic.

Ten Years' Experience with Culdoscopy: An Analysis of 594 Cases. W. E. Josey, J. D. Thompson and R. W. Te Linde. South. M. J. 50:713-719 (June) 1957 [Birmingham, Ala.].

Culdoscopy was performed by 59 surgeons on 594 female patients between the ages of 9 and 69 years. The anesthesia used in most of the patients consisted of intravenous administration of thiopental sodium, usually supplemented by nitrous oxide and oxygen. Caudal and spinal anesthesia were used occasionally. Because of the difficulty observed in maintaining an adequate airway in the knee-chest position, patients who are to have culdoscopy with the aid of general anesthesia should be routinely intubated. The indications for culdoscopy were as follows: to rule out or to establish the diagnosis of ectopic pregnancy in 356 and of endometriosis in 51 patients; as part of endocrinologic investigation in 43; to search for a cause of unexplained abdominal or pelvic pain in 45; as part of investigation for sterility in 37; to determine the nature of pelvic masses in 31; for suspected pelvic tuberculosis in 21; and for miscellaneous conditions in 10.

Culdoscopy proved to be a valuable aid in the diagnosis of ectopic pregnancy in 323 of the 356 patients. It was also useful in 47 selected patients with suspected endometriosis, in 43 patients with unexplained abdominal pain, in 28 with pelvic masses of an uncertain nature, in the 21 with suspected pelvic tuberculosis, in 36 sterile patients, and in 42 with endocrine disorders. It appears that, if used successfully, culdoscopy will substantially reduce the number of patients requiring laparotomy for these conditions. Culdoscopy was regarded as unsatisfactory in 45 patients (7.6%), a relatively low failure rate which can be reduced by rejecting patients with a fixed mass or firm adhesions in the cul-de-sac and by attention to proper technique in inserting the trocar.

Culdoscopy is relatively safe, but it is not without danger when injudiciously employed. In 1 patient, misuse of the culdoscope resulted in the unrecognized perforation of the rectum and perhaps contributed to the death of the patient, which occurred 2 days later. This accident is extremely rare and is unlikely to occur if good judgment is exercised in the selection of patients. Extraperitoneal perforation of the rectum, in contradistinction to intra-abdominal perforation, does not constitute a serious injury. Of 28 patients with early intrauterine pregnancy found at the time of culdoscopy, 23 delivered uneventfully, and 4 of 5 who subsequently aborted had uterine bleeding and cramp-like pain on admission to the hospital, suggesting that abortion was threatening before the performance of culdoscopy. Culdoscopy probably does not interfere with the progress of a normal early intrauterine pregnancy.

Hypofibrinogenemia in Pregnancy. J. Tortora and J. C. Amico. New York J. Med. 57:2055-2058 (June 15) 1957 [New York].

The obstetric syndrome of incoagulable blood, if not promptly corrected, can result in fatal exsanguination. This defect is generally due to a decrease in circulating fibrinogen. There is little agreement as to how this condition is brought about. However, the concept that the uterus or its contents release thromboplastin into the blood, thereby setting in motion a normal clotting mechanism, that the resulting intravascular clotting causes increased utilization of fibrinogen, and that the liver is unable to replace this deficiency quickly enough to prevent hemorrhage, is fairly widespread. Other theories—that a lysin is produced which destroys the fibrinogen or that fibrinogen production is retarded—have not been satisfactorily demonstrated. Clinically, this syndrome occurs in abruptio placentae, amniotic fluid infusion, long retention of a dead fetus (usually due to Rh insensitization), fulminating eclampsia, abortion, and retained placenta. In nonobstetric patients it is found in drastic thoracic surgery, in association with operations for pancreatectomy, and in the experimental animal following extensive tissue damage. Normally, there is no significant alteration in the plasma fibrinogen levels during delivery or post partum. Treatment of this condition involves restoration of normal clotting by intravenous administration of adequate amounts of human fibrinogen along with replacement of blood loss. The literature does not contain any mention of hypofibrinogenemia associated with placenta previa.

Idiopathic Myocardial Failure in the Last Trimester of Pregnancy and the Puerperium. W. R. Meadows. Circulation 15:903-914 (June) 1957 [New York].

The authors report on 15 women, 13 Negroes and 2 white, between the ages of 22 and 44 years, with the syndrome of idiopathic myocardial failure occurring in the last trimester of pregnancy or during the puerperium. This syndrome is characterized by symptoms of congestive failure, which, early, is predominantly left sided; chest and abdominal pain; embolic phenomenon (occurring in 25 to 40% of the patients); acute hypertension; gallop rhythm; generalized dilatation of the heart; and T-wave inversion. In the 15 patients, the symptoms of night cough, hemoptysis, and paroxysmal nocturnal dyspnea were the earliest clinical manifestations of myocardial failure rather than its cause. Eleven patients made complete clinical recoveries and 4 died. Autopsies revealed lesions resembling those observed in similar cases unrelated to pregnancy. There was a soft, flabby, dilated myocardium; ventricular mural thrombi were observed as well as endocardial thickening of variable extent; and there were focal and diffuse areas of myocardial necrosis, especially in the subendocardial portion of the ventricular wall. The cause of the endomyocardial lesions is unknown. The syndrome tended to recur with subsequent pregnancies.

The authors' observations and those of other workers indicate that these patients are usually considered clinically to have either rheumatic or hypertensive heart disease, one of the rarer recognized forms of myocardial disease, or a disease suggested by symptoms coming from embolization of organs. Therapeutic efforts should not rest with the control of the symptoms of congestive failure but should include prolongation of bed rest until after the heart size has returned to within normal limits, when this objective is attainable. While bed rest alone is sufficient treatment in many patients, the need for digitalization becomes apparent early in others. Since embolization, when it occurs, is frequently a very early event in the course of the syndrome, effective use of anticoagulants would depend on their administration at the earliest possible moment. The frequency of recurrence of the syndrome with subsequent pregnancies and the predominance in the puerperium of this type of congestive failure over those with usual causes suggests that the relationship to pregnancy is not fortuitous.

***A Clinical Analysis of 8063 Cases of Painless Labor* by the Psychoprophylactic Method.** Ch'en Wen-Chen. Chinese M. J. 75:338-343 (May) 1957 (In English) [Peking, China].

According to the author, painless labor by the psychoprophylactic method was introduced by Russian investigators in 1949 on the basis of Pavlov's theory and has been carried out since then in the Soviet Union, China, France, and other countries. In this report he analyzes 8,063 deliveries carried out with the aid of the psychoprophylactic method at the Maternity Hospital of the Peking Medical College between January, 1953, and December, 1955. Candidates for the psychoprophylactic method of delivery (women pregnant from 32 to 34 weeks) were encouraged to speak about what they knew of the process of childbirth and to reveal their worries and fears. In 3 antenatal classes, held at weekly intervals, explanations were given on the anatomy of the female pelvic organs, the physiology of labor, and how pain might be eliminated. Breathing exercises considered fundamental in painless labor were explained, and after the last lecture breathing exercises were given under supervision.

On admission to delivery, the ward staff made the patients as comfortable as possible. The labor and delivery rooms should be quiet and pleasant. The accoucheur reviewed the lessons with each parturient, studied her mental and emotional reaction, and tried give her confidence in herself and her attendants. uring labor, she was informed from time to time of e progress of labor and the management given. She as instructed in how she could best cooperate dur- g the different stages of labor, in breathing, relaxing nd straining. To those who had not attended all the lasses, supplementary talks were given if time and onditions allowed. The effectiveness of the psycho- rophylactic method was graded excellent, good, fair, r failure. The 8,063 women in whom the method was sed accounted for 92.8% of the total of 8,671 de- vered at the hospital during the 3 years (1953 to 1955 clusive). The remaining women had failed to at- end the antenatal clinic or had attended for too hort a time to receive proper preparation. The method roved effective in 94% of the women in whom it was sed. The psychoprophylactic method was more effec- ve in multiparas than in primiparas. The results in total of 7,406 full-term, occipital anterior, spontane- us deliveries were compared with those of a control roup of 3,496 deliveries in regard to duration of bor and blood loss. The average duration of labor n the cases conducted by the psychoprophylactic ethod was shorter by 2.02 hours in primiparas and .56 hours in multiparas than in the control group. he average blood loss was also less in the former roup. The causes of failure and the use of medica- ion as an auxiliary to the psychoprophylactic method re discussed.

PEDIATRICS

enal-Vein Thrombosis in Newborn Infants of Dia- etic Mothers: Report of Two Cases. M. E. Avery, . H. Oppenheimer and H. H. Gordon. New England . Med. 265:1134-1138 (June 13) 1957 [Baltimore].

Thrombosis of the renal veins in infancy is an un- sual occurrence and is commonly due to dehydration r sepsis. Sometimes it occurs without any predis- osing cause and has been referred to as primary enal-vein thrombosis. A report on 2 newborn infants with renal-vein thrombosis in the absence of dehy- ration or sepsis is made, in addition to 2 other infants with the same condition reported on in literature. hey were all excessive-sized infants and had mothers with a history of diabetes. The anatomic diagnoses f one infant were history of maternal diabetes with uspected abruptio placentae and cesarean section, yperplasia of the islands of Langerhans, organizing hrombosis of the right renal vein and inferior vena ava, fresh thrombosis of the right intrarenal veins, emorrhagic infarction of the right kidney, jaundice, and extramedullary hematopoiesis of the liver and pleen. The anatomic diagnoses of the second infant were history of maternal diabetes, stillbirth, macera- tion, and extensive bilateral thrombosis, associated with calcification, of the renal veins. The evidence that the prediabetic state as well as manifest diabetes of the mother is associated with excessive-sized infants is unequivocal. A possible explanation for the association of renal-vein thrombosis and maternal diabetes is that the circulation is slowed, with stasis in the renal veins. The importance of awareness of this condition and early diagnosis is heightened by reports of survival after nephrectomy in at least 12 cases.

Acute Pancreatitis in Children. D. A. Blumenstock, J. Mithoefer and T. V. Santulli. Pediatrics 19:1002-1010 (June) 1957 [Springfield, Ill.].

Although acute pancreatitis is a rare disease in children, it occurs frequently enough to be considered in the differential diagnosis of abdominal pain and vomiting. Four new cases (in children ranging in age from 8 months to 6 years are presented and 36 previously reported cases are reviewed. The etiology was unknown in the 4 cases presented; 1 was associated with a perforation of the right hepatic duct. Each of the patients was operated upon at some time during the course of the disease, and the diagnosis of acute pancreatitis was confirmed. All patients ultimately recovered. The diagnosis of acute pancreatitis is rarely made in children before operation or autopsy because the disease is confused with the more frequent causes of abdominal pain and vomiting in this age group. However, the clinical history and abdominal signs may be suggestive of acute pancreatitis. The diagnosis can be confirmed by demonstrating elevation of the concentration of amylase in the serum, provided mumps is not present. In contrast to adult patients, acute pancreatitis in children is seldom related to disease of the biliary system. Acute pancreatitis in children may be produced by trauma, acute infection, and mechanical obstruction of the pancreatic ducts by round worms. The etiology of the majority of cases, however, remains unknown. The complications of acute pancreatitis in children include diabetes mellitus, retroperitoneal hemorrhage, pseudocyst formation, and hypocalcemic tetany. Treatment of uncomplicated acute pancreatitis should be conservative if the diagnosis can be made without operation.

Mast Cell Leukemia Presenting as Urticaria Pigmentosa: Report of a Case. W. J. Waters and P. S. Lacson. Pediatrics 19:1033-1042 (June) 1957 [Springfield, Ill.].

The concept of "urticaria pigmentosa" as a benign dermatological syndrome needs revision, since generalized organ involvement may be present. There have been some reports indicating that urticaria pigmentosa may be associated with a generalized disease, but these generally concerned patients in the older age group. The authors had the opportunity to study a boy with a generalized tissue mast cell involvement. They believe this to be the first recorded demonstration of tissue mast cells in the peripheral blood in a child. When 9 months old the child had been hospitalized for studies on the allergic origin of a chronic dermatitis, but studies and treatment were not rewarding. When he was admitted again when 5 years old, the mother reported that the rash had persisted and that secondary infection had often been a problem. She had noted for the past 2 years easy bruisability and difficulty of arresting hemorrhage from minor cuts. One week prior to admission a cough developed, with a temperature of 40 C (104 F), and the boy complained of generalized abdominal pain. The local physician noted hepatosplenomegaly and referred him to the hospital. On the basis of skin and lymph node biopsies as well as the study of the peripheral blood and bone marrow, a diagnosis of "urticaria pigmentosa" with hematological abnormalities was established, and the patient was discharged to be followed as an outpatient. Three months later he was readmitted with a temperature of 40.5 C (104.9 F), lethargy, and vomiting of yellow-green fluid and coffee-ground material. He was apathetic and had petechiae in the palpebral conjunctivae and on the soft palate; distention of the abdomen was noted, with the liver palpated down to the right iliac crest and the the spleen 4 fingerbreadths below the costal margin. The extremities were mottled, cold, and moist. The boy died on the third day.

At autopsy the cutaneous lesions appeared as dried, maculopapular eruptions on the abdomen, groins, and thighs. The lymph nodes were enlarged. On microscopic examination, an invasion of characteristic tissue mast cells was found in most of the organs. The tissue mast cells appeared as large polymorphic cells with acidophilic cytoplasm and relatively large rounded nucleus. The liver was the most massively involved organ. The subcapsular hemorrhage freely communicated with that in the substance of the liver without a demonstrable rupture on the surface of the organ. Death was believed to be due to exsanguination. With demonstration of the tissue mast cells in the peripheral blood and bone marrow the condition was classified as a form of leukemia. Tissue mast cells should be differentiated from blood basophils, as in the literature these are occasionally used interchangeably. Heparin and histamine determinations on frozen postmortem specimens of liver showed a concentration of approximately 100 times normal. Cortisone has been suggested as an inhibitor of the growth of the tissue mast cells. The boy died before such treatment could be instituted.

Skeletal Tuberculosis in Children Treated for Primary and Miliary Tuberculosis. L. Milgram. Am. Rev. Tuberc. 75:897-911 (June) 1957 [New York].

A group of 554 children, aged 12 years or less when first seen, with roentgenographic evidence of primary tuberculosis were followed up for 2 to 8 years. Of these, 206 received chemotherapy for at least one month and 348 were untreated. Thirty-five of the treated patients also had miliary tuberculosis. The survivors of the treated group were compared with the untreated group for the incidence of bone and joint tuberculosis after admission. During the period of follow-up, skeletal lesions occurred with greatest frequency among the survivors of miliary tuberculosis. The incidence was low among children treated for indications other than miliary disease, including those treated for bone and joint tuberculosis, and was lower than in the untreated group. Bone and joint tuberculosis occurred less frequently in patients treated with streptomycin and isoniazid than in those treated by the previously used thiazolsulfone (Promizole). It is suggested that the bones are infected early in primary tuberculosis and that chemotherapy acts on already established foci. There is evidence that at the beginning of treatment of miliary tuberculosis there is widespread involvement of the bone marrow. Suc foci probably account for the frequency of clinic bone and joint tuberculosis in patients treated f generalized tuberculosis.

Phenylketonuria in Child with Normal Intelligence Quotient: Comparative Biochemical and Psychodiagnostic Investigation on Two Girls of the Same Age. H. Bickel and W. Grüter. Ztschr. Kinderh. 79:509-521 (No. 5) 1957 (In German) [Berlin].

Psychometric tests on over 300 patients with phenylketonuria observed in homes for feeble-minded and in schools for backward children had demonstrated that the IQ was extremely low in a large percentage of children with phenylketonuria and below normal in all of them. The authors cite a 5-year-old girl with phenylketonuria who had a practically normal IQ o 91. Comparative biochemical and psychometric test were made on this child and on another child with a IQ of only 23. Despite the decided difference in in telligence, the plasma levels for phenylalanine, tyro sine, tryptophan, and alpha-amino-nitrogen, as we as the urinary excretion of phenylalanine and pheny pyroracemic acid, were practically the same in bot children. Certain differences in the excretion of phen and of indole bodies could not be explained. Tl authors point out that the lack of a direct relationsh between defective intelligence and the biochemic abnormalities that were found does not necessarily indicate that there is no causal connection between oligophrenia and the biochemical disturbances. Metabolites not yet identified, the action of antimetabolites, the sensitivity of which differs individually, and other factors may play a part in damaging the brain in early childhood.

The following factors speak against the possibility of an unconnected, merely concurrent hereditary transmission and for a true causal connection of the two defects: (1) the modification of the feeblemindedness by a diet with a low phenylalanine content; ( ) the peculiar characteristics of the mental deficiency; and (3) the presence of extrapyramidal disturbances. Dissociated intellectual defects indicative of organic brain changes were revealed by special psychometric tests in the child with the normal IQ. Patients with phenylketonuria in whom the intelligence is relatively ell preserved are good subjects for the differentiation the mental defects of this disease from that of ordiry "endogenic" feeblemindedness. The detection of normal IQ in a patient with phenylketonuria raises e question of the frequency of this concurrence nong the general population and among the appartly normal members of families with hereditary henylketonuria. It also indicates that caution is necsary in ascribing normal development to the early nset of a diet with low phenylalanine content.

neumonopathy Due to Staphylococcus in Early Inncy: Clinical and Statistical Study of 27 Patients bserved During the Period from 1954 to 1956. A. enevolo. Minerva pediat. 9:393-402 (April 7) 1957 n Italian) [Turin, Italy].

Pneumonopathy caused by staphylococci was obrved by the author in 27 infants, 17 male and 10 male, 8 days to 14 months old, during the years 1954, 55, and 1956. Sixteen infants had empyema, 3 biteral; and 11 infants, 4 with hypertension, had opneumothorax. Pulmonary localization was on the ght side in 20 patients, on the left side in 4, and lateral in 3. Ten infants were observed during the inter, 8 in the fall, 5 in the spring, and 4 in the sumer. Four infants had abscess, 2 otitis, and 1 perirditis. The leukocyte count was high in all the fants. The erythrosedimentation rate was high in the infants in whom it was measured. The Staphylococis, which was always isolated from the pleural pus, as pyogenes var. aureus in 25 patients and pyones var. albus in 2. Twenty-three patients were eated with antibiotics and 4 were subjected to surry. Best results were obtained in infants treated ith chloramphenicol. Very good results were obined in 3 infants treated with erythromycin. Large oses of antibiotics were used in all 23 infants. One fant was treated with antibiotics and sulfanilamide iven intravenously and 2 with antibiotics and staphycoccic anatoxin. Vitamins and other drugs were given cording to need. The children that were operated n were subjected to pleurotomy with application of permanent drainage. The operation did not have fect on 1 child who was subjected to a direct interention on the lung 3 days after the first operation. en infants died: 2 of the 4 observed in 1954, 5 of the observed in 1955, and 3 of the 15 observed in 1956.

OPHTHALMOLOGY

cular Metastases in Hutchison-Pepper Syndrome. K. Das Gupta and S. Roy. A. M. A. Arch. Ophth. 7:821-831 (June) 1957 [Chicago].

A 12-year-old boy was admitted to hospital with ain, proptosis and chemosis of the right eye, and a welling on the left side of the face on May 2, 1956. othing abnormal was detected in the left eye. Genral examination led to the diagnosis of Hutchison-epper syndrome. The patient gradually became worse. Five days after his admission signs of portal hypertension appeared There was extensor plantar response to the Babinsky test, showing also involvement of the spinal column. The liver mass, jaw swelling, and lump in the renal region, together with the proptosis of the right eye, were gradually increasing. The proptosis caused ulceration of the cornea, which sloughed out completely with extrusion of the lens. The eye was enucleated. A sudden change occurred on June 26, 1956. The swellings on the jaw, liver, and kidney regions regressed totally, except for a small nodule in the cheek. Proptosis was becoming reduced. There was nothing more unusual about the patient to be noticed. However, the nodule on the cheek, which had almost totally disappeared, began to increase again. Two other small nodules were noticed over the jaw on the left side on Sept. 22, 1956. Biopsy specimens showed the same malignant characteristics as were previously found. At the end of October the patient's condition deteriorated gradually. Edema extended to the whole of the face and the scalp. Subsequently, basal congestion developed on both sides, and the boy died on Jan. 12, 1957. Neuroblastoma of the adrenal gland with involvement of the liver and orbit and other metastatic deposits is uncommon but not a rarity. No mention of involvement of structures of the eye in neuroblastoma of the adrenal gland could be found in literature. In the patient presented, metastatic deposits were found in the iris, ciliary body, ciliary processes, choroid, sclera, and optic nerve of the proptosed eye. The cornea could not be examined.

The Eye Bank and Corneal Grafting Program. H. L. Ormsby and P. K. Basu. Canad. M. A. J. 76:919-921 (June 1) 1957 [Toronto].

Thirty-five keratoplasties have been performed by a research team including an ophthalmologist and a surgeon at the Toronto General Hospital. The operations have been surgically successful, and some improvement in vision has resulted in most patients. Graft opacification caused by a typical antigen-antibody reaction occurred in 1 patient with conical corneas 6 weeks postoperatively, and delayed graft opacification occurred in 2 other patients with interstitial keratitis. Eight eyes with conical corneas had successful full-thickness grafts, resulting in vision ranging from 20/20 to 20/40. In 10 patients with severe recurrent metaherpetic keratitis, 10-mm. lamellar grafts were applied, resulting in visual improvement in all patients and complete remission of symptoms, and there have been no recurrences of the herpetic infection. A longer follow-up will be necessary in the over-all group of 35 patients to establish the virtue of grafting in various diseases, but at this time it is felt that the scope of keratoplasty may be enlarged to include corneal scars caused by chemical burns, a major cause of corneal blindness in Canada.

THERAPEUTICS

Treatment of Pulmonary Tuberculosis by Viomycin Combined with Oxytetracycline. A. Pines. Tubercle 38:189-193 (June) 1957 [London].

Viomycin has been used in those patients with chronic pulmonary tuberculosis in whom tubercle bacilli resisted streptomycin, aminosalicylic acid (PAS), and isoniazid due to previous imbalanced treatment. Use of this antibiotic alone results in resistance within 3 or 4 months. The tetracycline group of drugs has some antituberculous action and has been used to avert resistance to streptomycin and isoniazid. The combination of oxytetracycline and viomycin has been reported to have had little or no effect other than to prevent deterioration (Tucker, 1954; Holland and others, 1956). In this series, viomycin and oxytetracycline were given daily. Those patients (15%) unable to tolerate oxytetracycline were given tetracycline instead. Following treatment, total cavitation was reduced from 104 to 58 cm., well-being was improved, bacillary content was reduced considerably, and the erythrocyte sedimentation rate did not approach pretreatment levels. Of the 20 patients so treated, 1 died 6 months after treatment was begun from uremia due to renal vein thrombosis secondary to amyloidosis. In 4 of the patients there was no radiological change, previous operation having failed in 2 of the 4 patients. In 5 of the patients there was little or no radiological improvement, subsequent operations being performed under this drug cover. In 5 there was moderate to considerable radiological improvement, and insurance operations considered necessary were successful in all. In the remaining 4 patients, in whom previous operation had been unsuccessful, treatment succeeded in arresting the disease, allowing the patients to return to a comparatively normal life, with drug treatment continued. No major complication occurred during the 10 operations performed during the treatment period. There was no change in sensitivity of the culture to viomycin and very little change in sensitivity to oxytetracycline in those patients whose cultures were still positive after treatment.

First Therapeutic Experiences with Prednisolone Hemisuccinate Given Intravenously to Patients with Bronchial Asthma. F. Sicuteri and M. Ficini. Sett. med. 44:604-606 (Dec. 15) 1956 (In Italian) [Florence, Italy].

Prednisolone hemisuccinate in a lyophilized form, dissolved just before use in 2 to 5 cc. of isotonic sodium chloride solution was given by one or more intravenous injections a day to 10 patients with bronchial asthma. A dose of 25 mg. of prednisolone was given at each injection. Bronchostenosis was the first symptom to be influenced. Remission of the symptoms was complete in 8 patients, and in the other 2 the symptoms were markedly improved. The drug had a very rapid effect. The objective and subjective symptoms of 1 patient improved 20 minutes after the jection. Total remission followed after 1 hour. T best effect was obtained within the first 12 to 24 ho after the beginning of the treatment. This effect, wh it was partial, did not improve even after an additio 24 to 48 hours of treatment. Four patients in wh the treatment had a very good effect in a very sh time had been treated previously with predniso given by mouth. The effect of the treatment w stabilized with administration of 29 to 39 mg. of drug given by mouth in 4 patients. The sympto reappeared in a mild form in all the remaining tients after the treatment was suspended. Total mission of the symptoms followed whenever the tre ment was repeated. The administration of place did not cause objective or subjective changes in syndrome. The treatment was well tolerated by patients. Irritation of the vein into which the d was injected was not observed. One patient had mild palpitation, another a mild psychic exciteme Marked changes of blood pressure or of the bo weight were not observed. The count of eosinop cells remained constantly low 2 or 3 hours after beginning of the treatment. Increased diuresis w observed in 5 patients.

Report on Experience with Treatment of Tubercul with Cyanoacetic Acid Hydrazide (Reazide). A. Hec Tuberkulosearzt 11:286-292 (May) 1957 (In Germ [Stuttgart, Germany].

Three hundred patients, 260 male and 40 fema between the ages of 15 and 60 years with pulmona tuberculosis were treated with cyanoacetic acid hyd zide (Reazide) for from 1 to 12 months. The da dose varied from 300 to 700 mg. (5 to 8 mg. per ki gram of body weight). Daily doses up to 600 mg. we tolerated well without undesirable side-effects. V tigo and headache necessitated reduction of the da dose to less then 700 mg. Treatment had to be disco tinued during the first month in 46 patients (15.3 Forty patients were treated for more than 5 mont up to 1 year. Of the 300 patients, 134 had producti exudative or infiltrating pulmonary tuberculosis, 1 had productive-cirrhotic pulmonary tuberculosis, a 62 were treated with the drug postoperatively aft pulmonary resection or were given combined collap therapy and cyanoacetic acid hydrazide therapy.

Increase in weight resulted from treatment wi cyanoacetic acid hydrazide in 226 patients (75.3 The erythrocyte sedimentation rate was either d creased or maintained at the normal pretreatme level in 192 patients (64%). An increase in lymphocy which can be interpreted as a favorable symp with regard to stabilization of the pulmonary proce was observed in 122 patients (40%). Seventy-six p tients (25.3%) reverted to negativity in the course cyanoacetic acid hydrazide therapy. Chest roentge grams revealed satisfactory results in 112 (47%) of t 238 patients with active pulmonary tuberculosis. T hest roentgenograms were unchanged in 70 patients 29.4%) and became worse in 40 (16.8%), and treatment had to be discontinued because of intolerance in 16 patients (6.7%) of this group. In the 62 patients with pulmonary resection, the condition of the remaining lung appeared to be stabilized despite the presence of residual tuberculous foci in 40 patients 64.5%); 12 patients (19.3%) had contralateral foci which remained unchanged postoperatively; 6 patients (9.6%) were therapeutic failures, and in 4 patients (6.4%) treatment had to be discontinued because of intolerance. Clinical and roentgenologic improvement thus were obtained by 50% of the patients. The mechanism of action of cyanoacetic acid hydrazide is related to that of isoniazid. The inhibitory effect exerted by the cyanoacetic acid hydrazide on the tubercle bacillus in vitro is somewhat less marked than that of the common chemotherapeutic agents. Streptomycin, isoniazid, and aminosalicylic acid are superior to cyanoacetic acid hydrazide, but the latter may be considered as an additional useful agent, particularly in patients with poor tolerance of isoniazid or in whom this drug is ineffective.

Clinical Experience and Experimental Studies with Tolbutamide. J. W. Craig and M. Miller. Diabetes 6:280-287 (May-June) 1957 [New York].

Tolbutamide is a sulfonylurea compound. Its effect on the blood sugar level was studied in patients with diabetes mellitus of varying types and etiologies. A blood sugar level–lowering effect of the drug was demonstrated in a partially pancreatectomized patient, but hyperglycemia and glycosuria were not reduced by tolbutamide in a totally pancreatectomized patient who received a constant dose of insulin during the period of study. The drug was effective in decreasing the blood glucose concentration in a patient with Cushing's syndrome, including diabetes mellitus, and in another patient with steroid diabetes secondary to prednisolone administration. The drug appears to diminish the endogenous formation of glucose without altering the rate of utilization of administered glucose. An inhibitory effect upon an antagonist or destroyer of insulin seems unlikely. The action of the drug is not altered significantly by adrenal cortical steroids.

The Mechanism of Action of the Sulfonylureas in Diabetes Mellitus. R. Levine and G. W. Sobel. Diabetes 6:263-269 (May-June) 1957 [New York].

The authors evaluated various hypotheses concerning the mechanism whereby certain sulfonylurea compounds lower the blood sugar level. The evidence collected since 1942 (when French observers noted profound hypoglycemic states in patients with typhoid who were being treated with a new sulfonamide preparation) favors the view that these drugs stimulate the beta cells of the islands of Langerhans to secrete stored insulin and perhaps also to produce more of the hormone. Furthermore, the sulfonylureas may under certain conditions influence the activity of the liver cells either by inhibiting the output of sugar or by reducing the activity of the insulinase system. The authors list the following observations as evidence of the pancreatic site of action: the ineffectiveness of sulfonylureas in pancreatectomized animals and human subjects; their ineffectiveness in eviscerated animals; cross-circulation data indicating the presence of an insulin-like substance; the hypoglycemic response in hepatectomized animals; the correlation of effectiveness in human subjects with the insulin content of the pancreas; the hypoglycemic response from small doses injected into the pancreatic artery; the histological changes in the beta cells suggesting a stimulating effect; the ineffectiveness in completely alloxanized animals with a definite hypoglycemic response in partially alloxanized animals; the ineffectiveness in juvenile diabetics and in some adults with unstable diabetes; and finally the demonstration of some of the phenomena known to follow the injection of insulin.

An additional hepatic effect of the sulfonylureas is suggested by the following observations: the difference in the rate of fructose-to-glucose transformation under the influence of the drugs; in vitro studies indicating decreased glucose-6-phosphatase activity following treatment with these drugs; failure to demonstrate in all instances metabolic phenomena known to follow the injection of insulin; and an insulin potentiating effect in depancreatized animals given large doses of the drugs. In view of the fact that the action of the sulfonylureas becomes evident generally in the presence of functioning beta cells or of exogenous insulin, it would seem that an influence on hepatic insulinase is more probable than a direct action on the enzymes of glucose production.

Clinical Experience with More than 100 Patients Treated with Orinase. S. J. N. Sugar. M. Ann. District of Columbia 26:293-296 (June) 1957 [Washington, D. C.]

One hundred thirty-one patients with diabetes mellitus were treated with tolbutamide (1-butyl-3-p-tolyl sulfonylurea, Orinase). Of these, 4 were aged less than 20 years, 12 were between 20 and 39 years, 61 were between 40 and 59 years, and 54 were between 60 and 80 years. The patients were hospitalized and insulin therapy was abruptly stopped; 2.5 Gm. of tolbutamide was given the first day, 1.5 Gm. the following day, and a maintenance dose of 1 Gm. daily thereafter. Blood sugar levels before and after breakfast were measured each day, and quantitative estimation of glucose in 24-hour urine specimens was performed. At the first sign of ketonuria, insulin was given. Control was considered good if the average morning blood sugar level was below 200 mg. per cubic centimeter and the 24-hour urine glucose level was less than 15 Gm. If control appeared inadequate, the dose was increased by 0.5-Gm. increments up to 4 Gm. per day. When patients seemed to be doing well they were given a supply of tolbutamide, were advised to test urines at home, and discharged, to be followed in the outpatient clinic.

Ninety-eight (75%) of the 131 patients were satisfactorily managed. More success was observed in those who had not received insulin previously but whose conditions were inadequately controlled with diet alone. Best results were noted in patients over 40 years of age whose known duration of diabetes was less than 10 years and who were taking less than 40 units of insulin. The exact method of action of tolbutamide is not completely known. Experimental evidence indicates probable stimulation of the beta cells of the pancreas. No serious side-effects were observed. Most prominent was a tendency to gain weight. Tolbutamide is not a substitute for insulin. When ketosis appears, insulin must be used.

Oral Preparation of Antidiabetic Agents: Report of a Fatal Case. J. B. Field and D. D. Federman. M. Ann. District of Columbia 26:297-300 (June) 1957 [Washington, D. C.]

The authors report a case of fatal hypersensitivity to carbutamide in a 48-year-old woman with diabetes mellitus of 3 years' duration. Fasting blood sugar levels ranged from 202 to 230 mg. per 100 cc. of blood. Liver function tests were normal except for 14% bromsulfalein retention in 45 minutes. During a control period, the 24-hour glycosuria averaged 13.6 Gm., the fasting blood sugar level was 211 mg., and the postprandial blood sugar level was 232 mg. per 100 cc. Carbutamide was given for 7 days in doses of 2.5 Gm. and then increased to 4 Gm. per day. Glycosuria decreased to 3 Gm. per day, the fasting blood sugar level to 139 mg. per 100 cc., and the postprandial blood sugar level to 165 mg. per 100 cc. The blood level of carbutamide was maintained at about 15 mg. per cubic centimeter of blood. The patient was discharged on a regimen of 4 Gm. of carbutamide per day. Urine tests for sugar at home remained negative. Eight days after discharge she noted fever, chills, anorexia, and back pain. Because of a urine sediment loaded with white blood cells, she was thought to have a urinary tract infection and was given an injection of penicillin and streptomycin. In the course of the next 3 days her symptoms disappeared. When she was seen again her blood sugar level was 126 mg. per 100 cc. and the carbutamide level was 13.6 mg. However, the white blood cells numbered 2,500, with 21% eosinophils. Unsuccessful attempts were made to have her stop the carbutamide therapy. The next day she suddenly collapsed and died.

Autopsy showed interstitial myocarditis with infiltration of eosinophilic polymorphonuclear leukocytes. The liver showed chronic inflammatory cells in the portal areas and some miliary granulomas with giant cells. There was no caseation. The portal lymph nodes showed similar lesions. The kidneys showed eosinophilic polymorphonuclear infiltrates. The final diagnosis was sudden death probably due to hypersensitivity to carbutamide. The features of fever, leukopenia, and eosinophilia are compatible with this diagnosis. So far no deaths have been reported from tolbutamide, but this drug has not been used for as long nor as widely as carbutamide. At present the exact place of these drugs in the armamentarium of the physician treating diabetes is not known. Because of their potential toxicity and limited usefulness to patients who might well get along with dietary control alone, it is apparent that the long-sought oral antidiabetic agent is yet to be found.

Deaths Associated with Steroid Hormone Therapy: An Analysis of 18 Cases. K. D. Allanby. Lancet 1:1104-1110 (June 1) 1957 [London].

Since cortisone and corticotropin are employed in diseases likely to be fatal, deaths may have been unjustly attributed to these steroid hormones. Details were collected on all deaths during treatment with cortisone or corticotropin at Guy's Hospital in an attempt to decide whether the treatment was responsible, how death occurred, and whether it might have been prevented. The histories of 18 patients who died during treatment are reviewed. No death during substitution therapy for Addison's disease or hypopituitarism or following adrenalectomy or hypophysectomy for carcinomatosis was included. The author believes that steroid therapy could be fairly blamed for 9 of the 18 deaths and was probably responsible for 2 more. In 2 patients therapy has not been held responsible, and it seems unlikely to have played a part in a further 2. In the remaining 3, death was quite possibly hastened or contributed to by cortisone or corticotropin. Infection caused most deaths in this series, at least 6 and possibly 7 of the 18. One of the most disquieting features of many of the recorded deaths during steroid therapy is the suppression or masking of the symptoms and signs of infection. Patients may appear well despite active infection and may collapse suddenly.

There is a serious risk of adrenal failure in patients who encounter added stress during steroid therapy. Surgeons are often reluctant to continue hormone therapy when operation becomes necessary, usually on the grounds of delayed wound-healing; but this risk has probably been overestimated, and, moreover, it seems unlikely to be much reduced by stopping cortisone administration only a day or two before the operation. Equally, physicians may feel bound to stop steroid treatment should infection occur. Sudden withdrawal of cortisone, however, leaves the patient without endogenous corticotropin, and, though adrenal failure is not inevitable, the logical course is to continue cortisone or corticotropin therapy, often in much bigger doses, until the risk is past. In 3 of the patients death followed intestinal perforation. Perfo-ation of the colon complicated ulcerative colitis in one patient and divericulitis in another; and in the third patient perforation involved the terminal ileum affected by periarteritis nodosa. Though perforation usually occurs through a preexisting lesion in the gastrointestinal tract, steroid hormones can produce peptic ulceration in previously normal persons; and, though the exclusion of patients with an ulcer history from steroid therapy will diminish the chances of perforation, the risk remains. Steroid therapy inevitably carries some risk, and regular and careful observation of all patients is imperative.

PATHOLOGY

Clinical and Anatomicopathological Aspects of Primary Arterial Pulmonary Hypertension: Report on 2 Recent Observations. B. Caini and P. Panuccio. Sett. med. 44:516-530 (Nov. 15) 1956 (In Italian) [Florence, Italy].

The authors report on 2 patients with primary pulmonary hypertension. The first patient, a 55-year-old woman, had a bronchopneumonia at the age of 25 and again at the age of 42. The patient had dyspnea on exertion, fainting spells, and acute and repeated precordial pain for 37 years previous to the examination. The second patient, a 37-year-old woman, presented dyspnea on exertion and continuous and sharp precordial pain for 7 years previous to examination. The patient was cyanotic for a short period prior to the examination. A marked diastolic murmur in the third intercostal space, accentuation of the second pulmonic sound, and diastolic thrill were heard on auscultation in both patients. Roentgenologic examination showed a marked prominence of the pulmonary arch in the left profile, an enlarged ventricular shadow, a normal left atrium, and a marked shadow of the large branches of the pulmonary artery near the hilus. A marked ectasia of the large arterial trunks was observed after introduction of a contrast medium; the small branches became slightly opaque. Catheterization of the heart showed hypertension in the whole vascular pulmonary tree. The 55-year-old patient died and was subjected to autopsy. Lesions of the arterial pulmonary circulation were noted.

Activity of Alkaline Serum Phosphatase in Patients with Tumor Metastases. M. L. Meischke-de Jongh, H. B. A. Hellendoorn and J. Gerbrandy. Nederl. tijdschr. geneesk. 101:859-862 (May 11) 1957 (In Dutch) [Haarlem, Netherlands].

Alkaline serum phosphatase activity is often increased in patients with skeletal or hepatic disorders. Tumor metastases in the bones and in the liver are also frequently accompanied by an increase in the alkaline phosphatase content of the serum. In order to obtain more information about the diagnostic value of the alkaline phosphatase content of the serum, the authors made studies on 437 patients with carcinoma and on 93 patients without malignant tumors. The alkaline serum phosphatase level in the 93 patients ranged from 1 to 7 Bodansky units. Of the 437 patients with carcinoma, 354 had no signs of hematogenic metastases, but about 50% of them had lymphogenic metastases. It was found that 34 of the 354 patients (9.6%) without hematogenic metastases had alkaline serum phosphatase activity in excess of 7 Bodansky units. Metastases to the lymph nodes did not seem to influence the level of alkaline phosphatase in the serum. Of the 83 carcinoma patients who had evidence of hematogenic metastases chiefly in the bones and in the liver 51 (61%) had an alkaline phosphatase activity exceeding 7 Bodansky units, and in 36 of these it was over 8 Bodansky units. The alkaline serum phosphatase level was higher on the average in those with osteoplastic than in those with osteolytic metastases, but the difference was not statistically significant. The authors conclude that the determination of the alkaline serum phosphatase activity is valuable in detecting metastases in the bones and in the liver.

Serum Enzymes in Muscular Dystrophy and Certain Other Muscular and Neuromuscular Diseases. C. M. Pearson. New England J. Med. 256:1069-1075 (June 6) 1957 [Boston].

The enzyme glutamic oxalacetic transaminase, hereafter referred to as transaminase, is widely distributed in animal tissues and is found in greatest concentration in skeletal and cardiac muscle. Normally, this enzyme is exclusively intracellular, as only a small amount is present in the circulation, although destruction of tissue will cause added amounts of enzyme to be liberated and appear in the serum. An increase in serum enzyme activity is indicative of cellular destruction and is the basis for a reliable laboratory determination of myocardial infarct or necrosis of the liver. In a series of 8 patients with progressive muscular dystrophy the serum transaminase level was elevated in 47%. Division of the patients into 2 groups by age showed that 90% of those 18 years or younger had elevated transaminase levels, whereas the reverse (normal to subnormal serum levels) was true of those over 18. No significant correlation exists with regard to transaminase level and the duration of the pathological process. Likewise, no direct correlation is apparent between transaminase levels and the severity of the disease, in that studies have shown that normal transaminase levels persist at both ends of the spectrum. A relationship between transaminase level and the estimated rate of dystrophic process is depicted, as is a finer correlation between elevated enzyme levels and the presence of pseudohypertrophy. Patients with secondary or neural muscular atrophy, including amytrophic lateral sclerosis, chronic polyneuritis, peroneal muscular atrophy, and extensive poliomyelitis, all showed normal transaminase levels.

There is an increase in the serum aldolase level in a very high percentage of children with multiple dystrophy. The persistence of high serum enzyme levels in children with muscular dystrophy suggests that a continuously high degree of striated muscle damage is constantly occurring over a longer period than previously suspected. The differentiation of primary and secondary (neural) muscular diseases has been achieved, as an increased level of transaminase, heart and liver disease excluded, is indicative of a primary myopathy. A normal level would eliminate the possibility of primary myopathy with any significant rate of progress but would not rule out the presence of dystrophy. An elevated transaminase level is an early guide to the efficacy of trial therapeutic measures as well as a valuable diagnostic tool.

Sex Chromatin in Choriocarcinoma (Chorioepithelioma) and in Carcinoma of the Skin. W. W. Oosterhuis and I. S. Levij. Nederl. tijdschr. geneesk. 101:901-903 (May 18) 1957 (In Dutch) [Haarlem, Netherlands].

The following question prompted this investigation: is the sex chromatin detectable in choriocarcinoma, and, if so, is there a relationship between the sex chromatin in the neoplasm and the sex of the fetus of the pregnancy preceding the development of the choriocarcinoma? The authors first searched for the sex chromatin in 100 skin carcinomas, 50 from men and 50 from women. In 97 of the patients the sex chromatin of the skin tumor was identical with that of the host. In 3 cases, so little sex chromatin could be found in the tumor cells that it was assumed the patients were male when in reality they were women. Studies were then made on 5 of 9 choriocarcinomas, the specimens of the other 4 being inadequately preserved for study. The histories of the 5 women indicated that in 2 of them the choriocarcinoma developed after the birth of male fetuses; in these women the sex chromatin of the tumors was male. Studies were made also on choriocarcinomas discovered in 7 men at autopsy. The cell nuclei of 3 of the tumors showed the female sex chromatin and the others the male sex chromatin. The authors point out that this corresponds to results of studies on teratoma of the testis, about 50% of which show a female nuclear structure.

A Case of Stevens-Johnson Syndrome Which Occurred After a Smallpox Immunization. Y. Boquien, D. Hervouet, G. Dauphin, R. Lhermitte and C. Robin. Presse méd. 65:956-958 (May 22) 1957 (In French) [Paris].

A patient presenting a Stevens-Johnson syndrome was referred to the authors 48 hours after a smallpox immunization. The tentative diagnosis of the referring physician was either smallpox or a general reaction to vaccinia. Treatment with erythromycin and cortisone, combined with a massive rehydration, proved effective. No secondary infection of the skin occurred. There were no ocular complications. Convalescence was rapid, and there was no recurrence. Stevens-Johnson syndrome nosologically is often classified wrong. Its first description as ectodermis erosiva pluriorificialis was made by Fiessinger and Rendu. They pointed out the connection of Stevens-Johnson syndrome with erythema multiforme, the peculiar confluent character of this eruption, the grave deterioration of the general condition, and the importance of dehydration. Its symptoms are sometimes confused with Reiter's disease or Behcet's disease. Stevens-Johnson syndrome is not well known. In this case there is a correlation between the smallpox immunization and the initial signs of the disease. The hypothesis of allergy is not convincing. Biotropism seems to be the most acceptable explanation. The authors have the impression that Aureomycin has brought the best results thus far, despite the fact that they employed erythromycin and cortisone. The combination of corticosuprarenal hormones with polyvalent antibiotics and the restoration of the hydric and electrolytic equilibrium will probably improve the prognosis in even the severe cases.

Susceptibility of Enterococci and of Hemolytic Streptococci of Groups A, B, C, and G to Five New Antibiotics in Vitro. W. F. Jones and M. Finland. Am. J. Clin. Path. 27:528-533 (May) 1957 [Baltimore].

As part of a general study of the changing patterns of resistance of common bacterial pathogens to various antibiotics and during the study of 5 new antibiotics, it became of interest to determine the in vitro susceptibility of various pathogenic streptococci to these new agents. The results of tests for the in vitro susceptibility of recently isolated strains of specifically grouped streptococci to the 5 new antibiotics and erythromycin are presented graphically. Weight for weight, erythromycin was the most active and cycloserine the least active; novobiocin was appreciably less active than the other 3 antibiotics studied, namely, oleandomycin, spiramycin, and streptogramin, each of which exhibited some cross resistance with erythromycin. Of the 3 erythromycin-like agents, spiramycin was the most active against enterococci and streptogramin against the strains of other groups; oleandomycin had an intermediate activity against all of the groups tested. Strains of groups A, B, C, and G ranked in that order in their susceptibility to streptogramin and cycloserine; otherwise, there did not seem to be any relation between (1) the specific groups of hemolytic streptococci or the species of enterococci (group D streptococci) and (2) the susceptibility to each of the antibiotics included in this study.

The Thymol Turbidity Test in Screening of Blood Donors. E. R. Jennings, W. M. Hindman, B. Zak and others. Am. J. Clin. Path. 27:489-502 (May) 1957 [Baltimore].

Blood transfusions involve the hazard of the development of serum hepatitis, despite efforts to screen blood donors by medical history and hepatic function tests. Owing to the widespread confusion in regard to the usefulness of a hepatic function test for the screening of blood donors, the present study was begun with the hope that the observations would provide a means of determining whether the risk of serum hepatitis is increased when blood is transfused from donors who have significantly elevated thymol turbidity values. For the purpose of this study, an elevated thymol turbidity level was defined as that in excess of 8 Shank-Hoagland units. Blood from donors whose values for thymol turbidity exceeded this level was referred to as having come from "high thymol" donors. The test that was used is a modification of that described by De la Huerga and Popper. Thymol turbidity tests were performed on blood from 14,755 donors. Serum from 567 of these persons had values for thymol turbidity that were greater than 8 Shank-Hoagland units (3.8%). Follow-up examinations of 193 recipients of whole blood from donors with a thymol turbidity level greater than 8 units revealed 10 patients with serum hepatitis and 5 with possible serum hepatitis. In a control group of 603 recipients of blood from donors whose values for thymol turbidity of serum were normal or not known, follow-up examinations revealed no instances of serum hepatitis and 2 instances of possible hepatitis. The authors believe that the hazard of serum hepatitis is greatly increased when blood is transfused from donors whose serums have significantly abnormal values for thymol turbidity.

Histamine Inactivation Power of Blood Serum in Rheumatic Fever. J. L. Parrot, P. Mozziconacci, C. Danelatos and C. Laborde. Semaine hôp. Paris 34:2157-2159 (June 6) 1957 (In French) [Paris].

An attack of rheumatic fever is accompanied by a considerable reduction in histamine inactivation power of blood serum. This seems to be related to the patient's reactional capacity rather than to the streptococcic infection. Low histamine inactivating power seems to persist in patients with cardiac involvement. The histamine inactivation power is normal in cases uncomplicated by cardiac involvement, as in patients with mitral lesion but without previous rheumatic fever. The absence of histamine inactivating power of blood serum was found in Bouillaud's disease, asthma, urticaria, Quincke's edema, eczema, migraine, and acute gastric and duodenal ulcer. The study of the variation of the histamine inactivation effect can, with certain limitations, be added to other biological tests that help indicate the diagnosis and possibly the prognosis of Bouillaud's disease. The authors observed the histamine inactivating power of blood serum of 60 patients (52 children, 8 adults) with rheumatic fever. Twenty-five patients with the first rheumatic attack had a very low rate of histamine inactivating power, up to 5%; 10 patients with progressive rheumatic fever had a low rate, between 5 and 10%; 18 patients with static rheumatic fever had a rate below normal, between 5 and 20%; 7 patients with static rheumatic fever and no cardiac lesions had a normal or slightly lower than normal rate, between 20 and 30%. The authors are unable to say whether the variation of the histamine inactivating power proves that an attack of rheumatic fever is an allergic reaction predisposing to rheumatic fever; that is, whether the variation in the histamine inactivating power is the effect or the cause of the disease. In the absence of allergic antecedents, such as asthma, eczema, or urticaria, the study of the rate of histamine inactivating power variation can help in the diagnosis of the articular or cardiac rheumatic attack. This study adds arguments to the theory that rheumatic fever is an allergic reaction to the streptococcic infection.

RADIOLOGY

Congenital Malformation of the Renal Artery, a Cause of Hypertension. F. Isaac, T. H. Brem, E. Temkin and H. J. Movius. Radiology 68:679-687 (May) 1957 [Syracuse, N. Y.].

Although the validity of Goldblatt's experiment showing that interference with the renal arterial blood flow through one or both kidneys can result in sustained hypertension has been opposed by some investigators, there is general agreement that there are at least certain forms of renal disease which definitely represent the human counterpart of the experimental renal hypertension of Goldblatt. The authors observed 3 patients in whom hypertensive disease was associated with congenital malformation of one or both renal arteries. In the 2 in whom the malformation was unilateral, significant improvement is believed to have been achieved by nephrectomy. The incidence of such cases is probably higher than might be inferred from the literature. The malformation may take the form of a cirsoid angioma, giving rise to a characteristic deformity of the ureter by which its presence can be suspected on the excretory urogram. This, in turn, furnishes an indication for abdominal aortography, by which the diagnosis can be definitely established. If the disease is unilateral, the condition may be amenable to surgical cure by nephrectomy. It is assumed that the degree of improvement following nephrectomy is inversely proportional to the length of time that hypertension had existed. It is emphasized, therefore, that consideration be given to this possibility at the first discovery of "essential" hypertension, particularly in the young adult.

Gastrointestinal Roentgen Findings Due to Untoward Effects of Hexamethonium. I. K. Ettman, C. D. Bouchillon and H. H. Halford. Radiology 68:673-678 (May) 1957 [Syracuse, N. Y.].

Hexamethonium as a ganglionic blocking agent inhibits the transmission of nerve impulses through both sympathetic and parasympathetic ganglions of the autonomic nervous system. It causes generalized vascular relaxation, dilatation, and hypotension. In the gastrointestinal tract it produces gastric hypotonicity and hyposecretion of both the acid and mucous elements and has therefore been used in the treatment of peptic ulcer. The authors observed in the radiology department several interesting problems and potential hazards involved in the use of hexamethonium. They present the histories of 3 patients to show the value of roentgenography in the early detection of untoward effects of hexamethonium on the gastrointestinal tract. Gastric retention and adynamic ileus are the more serious complications resulting from treatment with hexamethonium. Suppression of secretion and motility in the stomach may cause retention of food particles, simulating gastric neoplasm. It is possible that toxic amounts of the drug may accumulate in the stomach and either be released into the duodenum in an unpredictable fashion or vomited, thus doing the patient no good and making evaluation of the dosage schedule difficult. Adynamic ileus is almost certain to ensue if supportive measures are not instituted early and adjusted according to the needs of the individual. The more severe cases may simulate organic obstruction. A simple scout film of the abdomen demonstrates the changes produced by the drug, frequently before clinical manifestations develop. With constant attention to and control of untoward reactions in the gastrointestinal tract and other body systems, the continued application of this useful adjunctive drug in the treatment of hypertension is justified.

ANESTHESIA

Re-evaluation of Paravertebral Lumbar Sympathetic Block in Treatment of Peripheral Vascular Disease. D. L. Crandell and W. G. Page. Anesthesiology 18:454-460 (May-June) 1957 [Philadelphia].

Skin temperature studies were utilized to compare the effectiveness of sympathetic block and sympathectomy with 2 relatively new adrenolytic and sympatholytic agents in producing vasodilatation in 208 patients with peripheral vascular disease of the lower extremity, 20 of whom had Raynaud's disease, 6 phlegmasia cerulea dolens, 61 acute thrombophlebitis, 18 thromboangiitis obliterans, 89 arteriosclerosis obliterans, 4 sudden arterial occlusion, and 10 postphlebitic syndrome. The adrenolytic agent, azapetine (Ilidar) phosphate (1 mg. per kilogram in 250 cc. of sodium chloride solution) and the sympatholytic agent trimethaphan camphorsulfonate (Arfonad) (2 mg. per kilogram in 250 cc. of sodium chloride solution) were administered intravenously until the maximal response was obtained or adverse side-reactions occurred. Paravertebral lumbar sympathetic block was performed with the single-needle technique, with insertion at the level of the second lumbar vertebra and injection of 30 cc. of 0.15% tetracaine hydrochloride. Evidence of complete sympathetic blockade and sympathectomy was determined by the disappearance of the sympathogalvanic reflex.

The intense vasospasm observed in Raynaud's disease showed a much greater response from sympathetic block than from the vasodilating drugs. In patients with thromboangiitis obliterans, with its varying degrees of vasospasm and organic obstruction, the results were better with sympathetic block. The results of sympathetic block and of the vasodilating drugs were similar in the patients with arteriosclerosis obliterans. Sympathetic inhibition of the lower extremity which is produced by sympathetic block more accurately determines the degree of vasoconstrictor tone and is a valuable aid in the differentiation between vasospasm and organic obstruction. In arteriosclerosis obliterans with normal vasoconstrictor tone positive results with sympathetic block where comparable with postlumbar sympathectomy studies. Negative results with sympathetic block were attributed to little or no vascular tone or to the slow progressive development of collateral circulation which may follow surgical sympathetic inhibition. Evidence of vasodilation in extremities effected by severe chronic arterial occlusive disease was much less impressive. Digits revealing a decrease in temperature and increased pain after sympathetic block may become gangrenous after sympathectomy. Sympathectomy is contraindicated when this phenomenon occurs. Sympathetic block was most effective in diagnosis (presence or absence of spasm), prognosis (to determine the potential effect of a surgical sympathectomy), and in treatment (traumatic or infectious spasm). Thus, even with the advent of newer sympatholytic and adrenolytic drugs an adequately performed sympathetic block continues to be a valuable tool in the anesthesiologist's armamentarium in the management of peripheral vascular disease of the lower extremity.

Evaluation of Electrocardiography During Congenital Heart Surgery. R. M. Smith and H. P. Wiley. Anesthesiology 18:398-412 (May-June) 1947 [Philadelphia].

Electrocardiographic tracings were taken during 103 operative procedures, 17 of which were performed for patent ductus arteriosus, 15 for coarctation of the aorta, 21 for atrial septal defects, 37 for tetralogy of Fallot, and 13 for pulmonary stenosis. Hypothermia or bypass techniques were not used in these operations. The anesthetic agents used included cyclopropane, cyclopropane-ether, nitrous oxide-ether, and nitrous oxide, thiopental, and curare. Preoperative medication consisted of pentobarbital sodium, morphine or meperidine, and atropine or scopolamine. No patient was digitalized in preparation for operation, but many of those with atrial septal defects were given quinidine to reduce myocardial disturbance. Calcium chloride was used as a cardiac stimulant during the course of several operations. Electrocardiograms were obtained in all patients just before the operation; during the start of the operation, opening of the pleural cavity, mediastinal dissection, clamping and releasing major vessels, entering the pericardium and heart, valvulotomy, periods of rapid blood loss or cardiac depression, closure of the pleural cavity, completion of surgery, and extubation; and after completion of the operation.

Of the 103 patients studied, only 11 showed normal reoperative electrocardiograms. The abnormalities iown by the electrocardiograms in the remaining 92 atients consisted of axis deviation, ventricular hyperophy, and bundle-branch block. During the surgical itervention the electrocardiographic tracings were gular throughout in 39 patients, sinus tachycardia as observed in 58, ST deviation in 10, auriculoventriclar nodular rhythm in 21, auriculoventricular block n 5, ventricular premature contraction in 37, ventricur paroxysmal tachycardia in 6, sinus arrest in 3, and entricular fibrillation in 2. Thus a variety of arrhythnias were observed, and their occurrence varied coniderably with the primary cardiac defect as well as vith the type and phase of the operation. From a ractical standpoint, most of the arrhythmias seemed f little importance with the exception of such terminal racings as sinus arrest and ventricular fibrillation. In atients with these arrhythmias, clinical observation sually preceded electrocardiographic changes. Elecrocardiography was of definite value in a few paients, especially in differentiating sinus bradycardia rom auriculoventricular block and auricular tachyardia from the more serious ventricular tachycardia. n many patients the conduction defects and arrhythnias found were clinically unimportant, nonspecific, r so late in appearance that the underlying problem vas already obvious. Consequently, the value of the lectrocardiogram seems limited. In the presence of reexisting myocardial weakness, however, and during perations involving direct stimulation of the heart uch a valvulotomy and atrial septal closure, sufficient nformation was gained by electrocardiography to nake its use definitely advisable.

A Study of the Cardiovascular Changes During Cooling and Rewarming in Human Subjects Undergoing Total Circulatory Occlusion. E. Blair, R. R. Austin, S. G. Blount Jr. and H. Swan. J. Thoracic Surg. 33:707-718 (June) 1957 [St. Louis].

The authors report cardiovascular observations made in the operating room throughout the course of intracardiac surgery in 23 patients between the ages of 3 and 35 years, subjected to general hypothermia with sigmoid temperatures between 26 C (78.8 F) and 31 C (87.8 F). Thirteen patients were operated on for interatrial septal defects, 3 for Tetralogy of Fallot, 6 for pulmonary valvular stenosis, and 1 for infundibular pulmonary stenosis. After premedication with meperidine (Demerol) hydrochloride and scopolamine, the patient was anesthetized with ether and a no. 18 Cournand needle was placed into the brachial artery. A polyethylene catheter was introduced by way of an anticubital vein into the subclavian vein or superior vena cava. Pressures were transmitted to a recorder. The patient was then placed into a tub of tap water and immersed to the neck. Ice was added to the water, and the temperature of the bath soon dropped to 5 C (41 F) or lower. When the desired level of temperature was reached, the patient was lifted out of the tub and onto the operating table. When the actual procedure within the heart had been accomplished, rewarming by short-wave diathermy was instituted. Attempts were made to determine heart rate, blood pressure, and venous pressure during the induction and initial stage of hypothermia, total circulatory occlusion, release of occlusion, and rewarming.

On cooling there was a transient elevation in blood pressure, followed by a fall which did not reach its maximum until 30 minutes after the sigmoid temperature had reached its lowest point. The pulse rate fell progressively with cooling, and the temperature and the pulse rate reached their lowest levels simultaneously. Blood pressures and pulses were lost to auscultation and palpation at varying points during cooling; at the times of the "clinical disappearance" both blood pressure and pulse rate were quite adequate, as demonstrated by direct measurements. The mechanism of the "clinical disappearance" is believed to lie in the physical state of the large arteries, which become rigid once the blood begins to cool. The magnitude of occasional changes in blood pressure and heart rate varied considerably between patients and appeared to have no direct relationship to the age of the patient and the type of the heart disease. Venous pressure rose on cooling and remained elevated. As the blood cools, the same constrictive effect seen in the arteries occurs in the veins. Under those circumstances the flexibility of the venous reservoirs is lost and volume changes are reflected in rising pressure. It is not clear why venous pressure remains high during rewarming when cardiac output is actually increasing. During total circulatory occlusion, the blood pressure fell, the heart rate (after neostigmine injection) slowed abruptly, and venous pressure at first rose and then fell in some patients. After return of circulation, an immediate overshoot of blood pressure occurred, while venous pressure dropped abruptly. During rewarming, all the circulatory signs returned to within normal limits at 34 C (93.2 F). Cardiovascular reflexes governing the circulation appear to be intact and adequate in man undergoing hypothermia in the range of 26 to 31 C.

The Utilization of Fog as a Therapeutic Agent. R. M. Tovell and D. M. Little Jr. Anesthesiology 18:470-479 (May-June) 1957 [Philadelphia].

Ninety patients with various disorders of the respiratory tract such as laryngotracheobronchitis in 63, poliomyelitis in 20, asthmatic bronchitis in 2, pneumonitis in 3, and edema of the larynx in 2 were treated by the use of a form of humidification provided by the installation of a natural fog generator in a full-sized patient room. Treatment periods ranged from less than a day to almost a month. Fog consists of finely divided water droplets in supersaturated air and is formed by the condensation of these very small air-borne droplets from the vapor state. These droplets reach the terminal bronchioles and penetrate to the alveoli themselves. The supersaturated atmosphere provides more moisture in terms of grains of water per pound of dry air than other methods of humidification in common clinical use; 10% excess moisture or supersaturation in the temperature range of 70 to 75 F (21 to 24 C) is the average obtained in the "fog room." The fog room thus provides a supersaturated atmosphere, at comfortable and controllable temperatures, in an area that is large enough to permit adequate nursing care and to prevent the development of a sense of claustrophobia in the patient.

Results obtained with the use of "cold" humidification as treatment for acute laryngotracheobronchitis have been particularly satisfactory, since it has been possible to prevent secretions from drying, becoming tenacious, and further obstructing respiration. It has also seemed probable that in some patients it has been possible to avoid performance of tracheotomy because of the therapeutic results obtained in the fog room. The importance of humidification for the patient with a tracheotomy has been impressively emphasized by the group of patients with poliomyelitis requiring care in a respirator located in the fog room. Therapy of a supersaturated atmosphere helped to prevent the sinister complication of crusting of secretions in the air passages of these patients. The control of temperature provided in the fog room proved to be a significant asset in the management of poliomyelitis, particularly when the hyperthermia inherent to the pathological process was accentuated by high environmental temperature occurring during summer months when the disease was prevalent.

This latter experience formed the basis for regulating the natural fog generator to produce a cold, relatively dry atmosphere and to utilize it to combat hyperthermia and to produce a moderate hypothermia (91 or 92 F) in 5 neurosurgical patients with midbrain damage caused by head injury, the postoperative effect of surgical intervention, and, in 1 patient, encephalitis of unknown origin. Results suggested that prolongation of life has been facilitated thereby in several of these patients.

Jaundice Following Small Amounts of Chlorpromazine. H. Zarowitz and I. S. Friedman. New York J. Med. 57:1922-1924 (June 1) 1957 [New York].

While many reports have appeared which stress the production of jaundice after chlorpromazine has been used for a period of time in large doses, the authors of this paper noted that jaundice may appear even after small amounts have been taken. The histories of 3 patients are presented in whom jaundice developed after doses of 45, 250, and 200 mg. In none of these patients was there any evidence of preexisting liver disease. The third patient had had a gallbladder operation 30 years previously but showed no signs of biliary tract disease during the ensuing years until her present illness after chlorpromazine had been administered. All the liver function studies indicated regurgitant jaundice. A survey of the literature revealed 2 other reports stressing the relation of jaundice to small doses of chlorpromazine.

Recently it has become an almost routine procedure in some institutions to administer chlorpromazine parenterally in order to diminish preoperative sedative requirements and postoperative nausea and vomiting. The effective initial dose seems to be 25 to 50 mg. It is evident that, since small doses are capable of producing jaundice, patients who have undergone abdominal surgical procedures and, more particularly, biliary tract manipulation might develop jaundice from the chlorpromazine rather than from the operation. In addition, confusion might arise in those instances of jaundice where both chlorpromazine and blood or plasma have been administered.

PUBLIC HEALTH

Clinical and Epidemiological Observations on Dengue Fever in Queensland, 1954-1955. R. L. Doherty. M. J. Australia 1:753-756 (June 1) 1957 [Sydney].

An outbreak of dengue occurred in the area served by the Innisfail Field Station of the Queensland Institute of Medical Research from March, 1954, to May, 1955. The clinical and epidemiological features of 75 patients referred to the field station whose disease was diagnosed as dengue fever are analysed. The disease presented as a febrile illness lasting from 2 to 7 days, with headache and muscular pains and with marked prostration in the more severe cases. Lymph node enlargement was the commonest abnormality. Rash, bradycardia, and biphasic temperature chart were seen in a number of cases, but many had no specific clinical features. The demonstration of complement-fixing antibodies in significant titer against antigens of the dengue group (particularly Murray Valley encephalitis antigen) gave support to the diagnosis in from 33 to 50% of the patients tested. Blood from 29 patients was inoculated into mice, but no virus was isolated. The much higher relative incidence of dengue fever in one over another locality is ascribed to the presence in the one of rain tanks and rubbish dumps, which provide facilities for the multiplication of Aedes aegypti. The city of Brisbane, from which A. aegypti is now absent, escaped the outbreak. This is noteworthy, as Brisbane had a high incidence in past invasions of Queensland by dengue.

Salmonellosis in Massachusetts: A Sixteen-Year Experience. R. A. MacCready, J. P. Reardon and I. Saphra. New England J. Med. 256:1121-1128 (June 13) 1957 [Boston].

An analysis of 2,625 salmonella organisms other than salmonella typhi recovered during a 16-year period, from 1940 to 1955, in Massachusetts, revealed 50 different types. S. typhimurium was the most frequent of all species recovered, followed by S. montevideo, S. newport, S. oranienburg, S. paratyphi B, and S. bareilly. The recoveries of these Salmonella organisms rose to a peak in August, when they more than doubled those made in the low month of Febuary. A substantial number of recoveries, however, vas made in all months. The seasonal variation of S. yphi recoveries closely paralleled that of the other ypes. The infection rate was higher in children than n adults and was especially high in the first year of ife. The gastroenteritis syndrome of diarrhea with or vithout fever was present in 70% of all patients and he typhoidal septicemic syndrome in only 6%. With S. paratyphi B these 2 syndromes were about equally requent. The typhoidal septicemic syndrome was present in 55% of the patients with S. choleraesuis nfection and the gastroenteritis syndrome in 26%. The infection rate from Salmonella organisms other than S. typhi was 1.4%; in the age group of 60 years or older it rose steeply; S. choleraesuis gave the highest death rate, 16%; the death rate for S. typhi was 8%.

Salmonellosis has not yet been effectively controlled in Massachusetts. The number of infections has increased from 58 to 393 since 1950. In the whole country the reported number of cases of salmonellosis increased from 1,233 in 1950 to 5,447 in 1955. It is widely held that animal products such as meat and eggs are the major sources of the infections among human beings. Measures to ensure their bacteriological safety must be, therefore, developed, as has already been accomplished with milk. During the 16 years of this study the number of carriers increased from 9 to 24; 12 carriers left at the end of 1955: 6 died, 4 had moved away from the state of Massachusetts, and 2 had ceased to be carriers (1 after gallbladder removal and the other, who had been a proved carrier for 2 years, spontaneously).

The number of S. typhi recoveries has continued to decrease, going from 99 in 1940 to 15 in 1955. The number of female patients who became carriers appeared to be higher than that of the males. Eleven salmonellosis outbreaks occurred during the period in which this study was carried out.

Clinical Manifestations of Salmonellosis in Man: An Evaluation of 7,779 Human Infections Identified at the New York Salmonella Center. I. Saphra and J. W. Winter. New England J. Med. 265:1128-1134 (June 13) 1957 [Boston].

A total of 7,779 human infections, exclusive of infections caused by Salmonella typhi and cultures from military personnel, were studied at the New York Salmonella Center between 1939 and 1955. Nearly 90% of the infections came from 5 eastern states, but almost all states were represented by some cultures. More than 300 infections were identified in cooperation with laboratories in Europe, Asia, Africa, Australia, and South America. Gastroenteritis was the most frequent clinical sign, occurring in 5,312 patients (68.3%). It ranged from the mildest ambulant forms to a most severe cholera-like form, associated with rapid dehydration, convulsions, and death, or a dysentery-like form with bloody, slimy discharges and tenesmus. Nausea, abdominal cramps, anorexia, and vomiting were frequent. The gastroenteric signs started mostly 12 to 48 hours after the ingestion of contaminated food and lasted for 1 or 2 days. High and persistent fever was rare. Bloody diarrhea was frequent in young children but rare in adults. Signs of a generalized infection, with high fever of a typhoidal or septic type, or focal manifestations such as meningitis or pneumonia or both developed some days or weeks after complete recovery from gastroenteritis. These manifestations were more frequent in infections with S. paratyphi B and, particularly, in those with S. choleraesuis. Excretion of Salmonella organisms in feces or sometimes in urine continued for weeks or months after the return of normal bowel function. All Salmonella types were found to be capable of producing septicemic or typhoid-like fever. S. choleraesuis was chiefly responsible for the septicemic type. S. paratyphi A and B and S. panama most frequently produced typhoid-like signs, which were milder than those of typhoidal fever caused by S. typhi. Focal manifestations were the predominant clinical signs in 572 patients (7.4%).

The acute inflammatory processes were associated with the gastrointestinal tract in 146 patients. Patients were often reported in this connection as operated on for clinically typical acute appendicitis, but with no pathological findings except for an acute enteritis of the lower ileum. S. typhimurium was frequently the causative agent. Abscesses occurred in 136 patients in any part of the body; the precise origin of the underlying inflammation could not be determined in a number of these pus formations. Infection of the respiratory system occurred in 85 patients and was frequently associated with high fever and a fatal outcome. Meningitis was observed in 77 patients with a great variety of Salmonella organisms recovered from the spinal fluid; almost all these patients were infants, a few days or weeks old. Osteomyelitis occurred in 59 patients, with almost all bone structures involved. There were urinary infections in 49 patients, frequently with signs of cystitis. Subacute bacterial endocarditis occurred in 20 patients of all age groups; all these patients died. A total of 318 cases (4.1%) of the clinical and subclinical cases of salmonellosis were fatal. In 172, infection was due to S. typhimurium and S. choleraesuis.

Of all the cultures submitted, 15.5% came from healthy carriers. Half of these carriers had previously suffered from gastroenteritis. Others had had close contact with patients with Salmonella infection or had partaken of contaminated food. A considerable number of carriers were followed for several years, without any change in their condition, although many of the infections cleared up spontaneously. Some of the carriers were extensively treated with the antibiotics that were found active in vitro against the organism; the results were disappointing. The high incidence, morbidity, and fatality rate of group C infections, particularly those due to S. choleraesuis, is emphasized, and the inclusion of the C antigen in the active immunization process is recommended.

BOOK REVIEWS

Practical Gynecology. By Walter J. Reich, M.D., F.A.C.S., F.I.C.S., Attending Gynecologist and Section Chief, Fantus Clinics of Cook County Hospital, Chicago, and Mitchell J. Nechtow, M.D., F.A.C.S., F.I.C.S., Associate Attending Gynecologist, Cook County Hospital and Fantus Gynecologic Clinic. Second edition. Cloth. $12.50. Pp. 648, with 284 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W.C. 1, England, 1957.

This book is primarily for the general practitioner. It contains a common-sense discussion of psychosomatic gynecology and an acceptable chapter on infertility; it is well illustrated with line drawings and photographs and has, at the end, 68 beautiful colored reproductions of such things as cervical lesions and vaginal smears; but much of the rest of the book is aimed at about the level of a third-year medical student. It is incomplete, as it contains no mention of endometrial hyperplasia. There are no references to the literature. There is practically no discussion of treatment, and much of what there is, is dangerous. The following are examples. "Ovarian cysts will usually respond to doses of the order of 2,000 r spread over one or two months." Carcinoma of the vulva "is usually a squamous cell carcinoma and can be controlled by irradiation therapy as any other skin carcinoma." The authors persist in using the term and concept of "imperforate hymen." The book needs a thorough revision by some critical and informed person. It is published on glossy paper. There is a fairly adequate index. It is attractively and carefully printed.

Magnetic Removal of Foreign Bodies: The Use of the Alnico Magnet in the Recovery of Foreign Bodies from the Air Passages, the Esophagus, Stomach and Duodenum. By Murdock Equen, M.D., F.A.C.S., Chief of Staff of Ponce de Leon Infirmary, Atlanta, Ga. Cloth. $4.50. Pp. 94, with 119 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1957.

In this small book the author has discussed his experience in the recovery of 228 foreign bodies from the air passages, the esophagus, stomach, and duodenum by the use of the Alnico magnet. Writing in an informal and conversational style and using abundant illustrations, the writer not only describes his techniques but points out the disadvantages, contraindications, and precautions and discusses those cases in which the magnet was used without success. The chapters deal with history, the technique of using the magnet, other apparatus required, air passages, esophagus, stomach, duodenum, and the limitations of the magnet. Illustrative case reports are included. This book should prove informative to many groups but particularly to the otolaryngologists, roentgenologists, and thoracic surgeons.

BCG Vaccination Against Tuberculosis. By Sol Roy Rosenthal, M.D., Ph.D., Director, Institution for Tuberculosis Research of the University of Illinois, Chicago. With sections by Dr. Camille Guérin, Dr. Bernard Weill-Hallé, and Dr. Arvid Wallgren, Professor of Pediatrics and Head of Pediatric Clinic, Royal Caroline Institute of Medicine, Norrtull's Hospital, Stockholm. Cloth. $7.50. Pp. 389, with 43 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. B. Lippincott Company, 4865 Western Ave., Montreal 6, Canada, 1957.

BCG vaccination against tuberculosis is accepted, with few exceptions, in virtually every country in the world, and it is estimated that over 100 million people have been so vaccinated. In the United States, BCG vaccine is widely used but on a small scale. The American Trudeau Society, Public Health Service, and the Council on Drugs of the American Medical Association recommend its use for persons unavoidably exposed to tuberculosis and for groups considered to have inferior resistance and who live in communities with unusually high mortality from this cause. Despite these recommendations, most persons in the recommended groups have not been vaccinated.

This volume is directed toward the medical profession and allied groups with the hope of clarifying the problem. It does not attempt to review all the vast literature. The subjects considered are immunity in tuberculosis; vaccines other than BCG against tuberculosis; history of BCG; cultural characteristics, morphology, and staining properties; dissociation and variation of virulence or attenuation; reproduction; host response; culturing and preparing BCG vaccine; standardization; preservation by freeze-drying; routes and methods of administration; the tuberculin test in BCG vaccination; resistance in animals and man; virulence in animals; untoward reactions and virulence in man; vaccination in those infected with tubercle bacilli; and tuberculosis control and BCG vaccination. The author concludes that tuberculosis still remains a major health problem in the United States. In this country, where tuberculosis control programs exist on a large scale, BCG vaccination can play an important role in further diminishing the incidence of the disease. Whether or not you agree with all the conclusions drawn, this volume is well worth reading.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

DIABETES FOLLOWING CORTICOSTEROIDS

To the Editor:—*Can treatment with corticosteroid drugs (cortisone and prednisone) ever produce diabetes mellitus in an individual? Could this diabetes persist even after cessation of treatment?*

M.D., Illinois.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—In an hereditarily predisposed individual, corticosteroids may be a factor in the production of diabetes. Hyperglycemia and glycosuria, seen during therapy in an individual not predisposed to the disease, disappear with cessation of treatment.

Answer.—The glucocorticoids, such as cortisone and prednisone, may reduce carbohydrate tolerance. When given to experimental animals, the glucocorticoids affect fat, protein, and carbohydrate metabolism and promote gluconeogenesis, hyperglycemia, and glycosuria. They may cause negative nitrogen balance unless adequate protein is supplied.

The evidence at present seems to be that in patients who already have borderline glucose tolerance diabetes mellitus may be precipitated by glucocorticoid therapy. It must be pointed out that the renal threshold for glucose may be lowered by glucocorticoids and a temporary renal glycosuria may result. Usually, if carbohydrate tolerance has been depressed by glucocorticoids, it returns to previous levels if therapy is terminated. True diabetes mellitus, however, can at least be precipitated in predisposed persons by cortisone and similar steroid hormones. The diabetes may persist after cessation of administration of such hormones.

REFLEX VOMITING AFTER FATTY MEAL

To the Editor:—*Why does a meal with excessive fat cause nausea or nausea and vomiting in so many patients who otherwise are perfectly healthy?*

M.D., California.

Answer.—Nausea and vomiting are basically reflex in nature regarding the stimulus. Unless a conditional reflex has been established in the condition described, the stimulus does not arise in the higher centers. If vomiting occurs rather promptly after ingestion of a meal high in fat, the initiating stimulus may act on receptors in the oropharynx which may be particularly sensitive to fat. It may be recalled that swallowing a tablespoon of any kind of fat is normally rather difficult and likely to cause nausea and vomiting. If the response occurs a considerable time after ingestion of fat (half an hour or more), it is likely that afferent vagus fibers of the stomach are stimulated. This could be brought about by an exaggerated enterogastric reflex which might be reinforced by a sensitive enterogastrone mechanism, either or both of which could lead to gastric stasis with subsequent nausea and vomiting.

TREATMENT OF OTITIS EXTERNA

To the Editor:—*What is the advisability of using hydrocortisone—ointment, cream, or suspension—in the treatment of otitis externa? Is there any other new treatment?* *M.D., New York.*

Answer.—The treatment of otitis externa truly taxes the ingenuity and resourcefulness of the physician and the patient alike. Before arriving at a diagnosis with idiopathic otitis externa, specific skin diseases, such as seborrheic dermatitis and psoriasis, should be carefully ruled out. Cultures and sensitivity studies should be performed before any type of antibiotic therapy is instituted. Occasionally a direct smear of the exudate from the external canal, stained with either Wright's or Giemsa stain, will give the physician some idea as to the predominant organisms, and sometimes it is even more helpful than the cultures themselves. It is sometimes difficult to determine, after one has isolated organisms by culture, whether these organisms are actually producing a secondary infection or whether they just happen to be living on eczematized skin. It should be kept in mind that the high humidity which exists in the external canal surely is conducive to the growth of bacteria, especially if the canal is eczematized.

After one has arrived at a diagnosis of idiopathic otitis externa, one then has to choose the most appropriate preparations for beginning treatment. The choice of vehicle for the medicament to be employed is important. In general, the same rules follow in choosing the vehicle as apply for patients with eczematous dermatitis in other parts of the body. When the patient's otitis is very acute, edematous, weeping, and crusted, the vehicle of choice is either an aqueous solution or a lotion containing the drug. As the otitis becomes less acute, one may then employ oil-in-water emulsions as vehicles. As it becomes still less acute,

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

water-in-oil emulsions may be employed. The best antieczematous drug is hydrocortisone and its derivatives, specifically, fluorinated hydrocortisone. Some cases appear to respond best to the fluorinated compounds; others respond better to the plain hydrocortisone. Hydrocortisone is employed in percentages varying from 1 to 2.5%, and the fluorinated compounds are employed in percentages varying from 0.1 to 0.25%. The same percentages may be used in the ointment bases described above.

When the patient's dermatitis extends far into the external canal and even encroaches on the drums, it is better to drop the lotion into the ear canal rather than to attempt the fruitless task of trying to apply an ointment into this area with the finger. One or two drops of the hydrocortisone or fluorinated hydrocortisone lotion may be used three times a day. On the parts of the external canal which are accessible to the finger, the lotion or ointment may be applied three to five times a day, with the finger rubbing the lotion or ointment (as the case may be) in well. Caution should be taken against applying layers of ointment too thickly. The lotion form of hydrocortisone preparations in the form of drops may be used at the same time that an ointment for the part of the canal accessible to the finger is used. The patient should file his nails smooth, so that the canal will not be damaged by scratching. If a secondary infection is definitely present, appropriate antibiotics are chosen and employed in the same type of vehicle as the hydrocortisone preparations mentioned before. For infections caused by Pseudomonas organisms, polymyxin B is preferred; for micrococcic (staphylococcic) infections, one of the tetracycline preparations is used. Recent studies have revealed that neomycin sensitivity in otitis externa is a definite possibility, so that long-continued use of neomycin in the external canal should be avoided. Patients with otitis externa seem particularly apt to develop neomycin sensitivity.

HEADACHE DUE TO ALLERGY

To the Editor:—*Is it possible for a person with an allergic history to have headaches over the entire head area? Could allergy also cause the appearance of "spots" before the eyes?* *M.D., Illinois.*

Answer.—It is possible for a patient with an allergic history to have headaches over the entire head area; however, in most instances allergy of the nose and nasal sinuses causes a pain which is located chiefly in the forehead and across the bridge of the nose. It may be more on one side than on the other but may be on both sides at the same time. It is rather unusual for patients who are allergic to have pains on top of the head or in the back of the head. Those pains are usually associated with tension headaches. This consultant does not believe that allergy leads to "spots" before the eyes. Ophthalmologists advise that in older patients these spots come naturally and stay permanently.

FOLLOW-UP OF X-RAY SURVEYS

To the Editor:—*Have any studies been made to suggest how many cases of active tuberculosis might be overlooked when bacteriological tests are not included as part of the routine follow-up of all miniature x-ray survey films interpreted as "lung lesions"? Is it not common practice to dismiss such cases if a single large film, though perhaps showing pathology, does not give the impression of activity?*

M.D., California.

Answer.—To dismiss a suspect tuberculous condition on the basis of one film is poor medical practice. Any significant lesion on a chest film deserves additional study, which should also include a study of the sputum and skin tests with tuberculin, histoplasmin, and coccidioidin. The key word, of course, is "significant." If the lesion is a small, very dense calcification or a slight blunting of the costal angle, it should not be considered as significant.

Mass x-ray surveys should have an adequate clinical center to which all suspects can be referred, and in hospital surveys it is assumed that such follow-up will be available within the institution. On the other hand, there are cases of large excavating lesions where the probability of tuberculosis is so great that the follow-up is urgent, and such patients should be kept from circulation until the diagnosis is reached.

SPERMATOGENESIS

To the Editor:—*A man, aged 27 years, suffered a severe electric shock when 7,600 volts of electricity ran through his body as an electric cable touched a hoist crane where he was standing. He received electric burns of both hands and feet, and there was a small ulceration on the glans penis. When the patient was examined a month later, the penis showed healing of the ulcer, with scarring and redness. The testes are small but normal, and the patient states that they have always been small. There are no remarkable findings in the epididymis and the prostate. A sperm count taken a year and a half ago was 85 million per cubic centimeter of semen, with 20% motility at 1 hour and 5% motility after 24 hours. Semen analysis about six weeks after injury gave a count of 9 million sperms per cubic centimeter, with an occasional motile sperm noted at one hour and all dead at two hours. A repeat semen analysis two months after injury gave a count of 6 million sperms per cubic centimeter, with no motility at one hour. Is it possible for the electric shock to have caused this severe oligospermia?*

John M. Schultz, M.D., Miami, Fla.

Answer.—Very little has been published on the effect of high voltage on spermatogenesis. Opinions among investigators in the field of infertility vary sharply. Agreement appears to be confined to the conclusion that further investigation is necessary. This patient was apparently infertile prior to the accident.

Semen examination some 17 months earlier, presumably done because he had failed to father a child, had shown that he had depressed fertility. His testes were then small, and they did not become smaller after the accident. Biopsy of a testicular specimen may throw some light on the subject. Without this study, a plausible explanation may be that the patient has a progressive deterioration of fertility, the exposure to the high-voltage current being only incidental.

RHEUMATIC FEVER PROPHYLAXIS WITH PATIENT ALLERGIC TO PENICILLIN

To the Editor:—*What is the latest treatment of rheumatic fever in the case of a patient who is allergic to penicillin? H. V. Weems, M.D., Sebring, Fla.*

Answer.—It is assumed in the query that "treatment" implies prophylaxis, because one does not actually treat a patient with active rheumatic fever with penicillin or any other antibiotic. Although prophylaxis is best achieved with dibenzyl penicillin administered by injection or with orally administered penicillin, other antibiotics can be used. The council on rheumatic fever and congenital heart disease of the American Heart Association has recommended penicillin as first choice, sulfadiazine as second choice, and other antibiotics, such as tetracycline, as third choice. It would seem, therefore, that in this particular patient sulfadiazine should be used. The dose is 1 Gm. per day, given in a single dose either immediately after breakfast or before retiring at night. The greatest experience has been accumulated in prophylaxis of rheumatic fever with either penicillin or sulfadiazine. It is quite possible that other antibiotics, such as tetracycline, might be used effectively in prophylaxis. There are some reports in the literature of such use. However, since there are so many long-term studies already reported on the effectiveness of sulfadiazine, it is advised that sulfadiazine be used in this case.

TREATMENT OF TOE ULCER IN A DIABETIC

To the Editor:—*A diabetic, under control for about a year, has an ulceration, half a centimeter in diameter, above the proximal phalanx of the big toe. All conservative measures have failed. Please advise as to treatment.*

Frederick W. Gebhardt, M.D., Columbia, Ill.

Answer.—In the case of the patient described, the first step is to obtain an x-ray of the foot. If there is no osteomyelitis, the following course of treatment is suggested: 1. The patient should be put to bed at complete rest. 2. A culture of the secretions from the ulcer should be made, preferably after a period when the patient has not had antibiotic therapy. 3. Antibiotic therapy should be given as suggested by the organism present and suggested by sensitivity tests. Such antibiotic therapy must be carried out for many weeks and should be continued indefinitely, as long as there is evidence of healing. During the time of therapy diabetic management, which is as strict as possible, is necessary. This includes an adequate and nutritional diet and insulin enough to make sure that the patient has no glycosuria. 4. Some vasodilator drug should be given during the time of bed rest. Priscoline or Arlidin are two which may be used. 5. Local measures should be kept at a minimum. No ointments are suggested. The ulcer should be kept covered with a thin layer of gauze only, and the foot should be soaked once daily in a solution of 1:5000 potassium permanganate or some similar disinfectant.

In the presence of some circulation to the foot and without osteomyelitis, many of these ulcers heal on the above regimen if it is followed for a long enough time. This may be several months. In the presence of osteomyelitis, especially if there is moderate to marked reduction of the arterial supply of blood to the foot, midthigh amputation is indicated.

MOSQUITOES AS VECTORS OF INFECTIOUS HEPATITIS

To the Editor:—*Has it ever been demonstrated that mosquitoes can carry infectious (epidemic) hepatitis?*

Milton Zimmerman, M.D., Primavera, Paraguay.

Answer.—That mosquitoes might act as vectors of infectious hepatitis has never been demonstrated. In Central America, where there has been an abundant mosquito population, outbreaks of a disease have occurred which was originally thought to be yellow fever and which later proved to be infectious hepatitis. For this reason in areas where yellow fever is occurring and in areas where infectious hepatitis is present, virus studies (primarily neutralization tests for yellow fever) must be made to differentiate between these two diseases. Biopsies of liver tissue would be of assistance but are not always conclusive. Other insects, such as flies and bedbugs, have been suspected as carriers, but there are not sufficient grounds for any conclusion on this point. It would seem from the background of the various types of hepatitis that hepatitis following serum or blood transfusion (homologous serum jaundice) would be the type that would most likely be transmitted by insects. This disease, as is known, can be easily transmitted artificially.

The query is one which deserves much more research to prove or disprove whether mosquitoes can transmit infectious hepatitis. Pellissier (*Bull. Soc. path. exot.* 45:304, 1952) says of the role of mosquitoes in transmitting infectious hepatitis: "Transmission by mosquitoes, while not certain, appears very probable. (Mice were inoculated with a cross mixture of various species of mosquitoes; one mouse was said to have contracted the disease.) The inoculation experiments with isolated species of mosquitoes were not successful."

IMMUNIZATIONS AND SURGERY IN PATIENT WITH NEPHROSIS

To the Editor:—*The parents of a 9-year-old boy with a history of nephrosis say that they have been advised that the child should not be given any inoculations because of the possibility of a flaring up of the nephrotic condition. Assuming the nephrotic condition to be quiescent, what contraindications are there to the administration of poliomyelitis vaccine, triple boosters (diphtheria and tetanus toxoids and pertussis vaccine combined), and other vaccines? In addition, the child has a severe inguinal hernia on the left side. Is there any reason to postpone operation?*

D. L. Weinstein, M.D., Washington, D. C.

Answer.—In the opinion of this consultant there is no contraindication to the administration of poliomyelitis vaccine, triple boosters, or other vaccines to nephrotic children in remission. If the inoculations should cause a transient febrile reaction, albumin may appear in the urine for a few days, but this usually subsides quickly. In past experience, a recurrence of nephrosis has not been precipitated. If the child's general condition is good, the operation for inguinal hernia need not be postponed.

DAILY DOUCHING OF NOSE

To the Editor:—*Submucous electrocoagulation and clipping of the posterior ends of the inferior turbinates were done on a patient's nose for vasomotor rhinitis, with good results thus far. There has been a little dryness for years. Is it harmful to douche the nose daily with warm isotonic sodium chloride solution? Is it advisable to use one-half glycerin and one-half isotonic sodium chloride solution as a spray?*

M.D., Illinois.

Answer.—It is not improper to douche the nose daily with warm isotonic sodium chloride solution if it gives comfort. It is assumed that proper precautions are taken to avoid ear and other complications. If the 50% glycerin solution is not irritating or too drying, it is permissible to use it as a spray.

MOUTH TEMPERATURE AFTER SMOKING

To the Editor:—*Have any experiments been done concerning the temperature in the mouth of a patient when not smoking and the temperature of this same patient immediately after inhaling smoke from a cigarette, cigar, or pipe? Is there an increase in temperature, and to what degree, from the three methods of smoking mentioned above?*

Norman Glazer, M.D., Louisville, Ky.

Answer.—Smoking tests were carried out on five habitual smokers (cigarettes and pipe). The oral temperature was obtained before smoking and again 1 minute and 5 minutes after the completion of the smoking of a cigarette (5 to 7 minutes) and after 10 minutes of continuous pipe smoking. The greatest rise obtained was 0.1 F one minute after smoking. Apparently the amount of heat is too small to produce any significant change.

SURGERY FOR BILATERAL INGUINAL HERNIAS IN SIX-YEAR-OLD CHILD

To the Editor:—*A 6-year-old girl has had bilateral inguinal hernias for the past year. These are small (about the size of a hazelnut), and they protrude with coughing, sneezing, straining, or laughing. The child sometimes says, "Mama, my hernias are gurgling!" Is surgery considered unnecessary, advisable, urgent, or mandatory?*

Charles L. Concklin, M.D., Corpus Christi, Texas.

Answer.—In the opinion of this consultant an operation is advisable for this patient with bilateral inguinal hernias. At her age there can be no question of a spontaneous closure of the internal inguinal ring. The fact that the child notices "gurgling" when the hernias protrude implies that intestinal content enters the sac, and therefore the danger of incarceration is always present. The prudential course is to subject her to bilateral hernia repair during her school vacation.

ANTIGEN TEST FOR BRUCELLOSIS

To the Editor:—*Please supply information regarding the efficacy and the efficiency of Castañeda's antigen test for brucellosis. Is the test a simple procedure for a small laboratory?*

M.D., Michigan.

Answer.—The Castañeda antigen test for the diagnosis of brucellosis is a rapid slide test which is adjusted to detect the presence of serum agglutinins at or above a concentration of 1:100. It is best used during the early stages of acute brucellosis in man when its efficiency is high although admittedly somewhat inferior to that of the standard macroscopic agglutination test. The test is performed at the bedside or in the office with the whole blood of the patient (a procedure also feasible if the patient can visit the laboratory); otherwise the test is better performed with the patient's serum. The test is not intended to supplant the standard serum agglutination test but to save time in arriving at an early diagnosis.

The test's efficiency may lessen with later stages of disease, and its results may be equivocal if serum titers rise to high levels. The test is clearly most valuable when the operator is the physician who knows the history and physical findings of the patient. As with other forms of agglutination tests, primary efficiency is dependent upon the use of Brucella abortus cells with correct antigenic surface properties. Only the BAI standard antigen, or another abortus strain carefully and accurately verified to be its equivalent in reliability, should be used. The antigen should be prepared by a person who is competent in these matters. Excellent advice on how best to use it can be obtained from a paper by Castañeda (*J. Immunol.* 43:203, 1942).

THIRD PREGNANCY AND RH FACTOR

To the Editor:—*An expectant mother is Rh negative; her husband is Rh positive. Her first delivery was spontaneous at seven and a half months; the infant, weighing 4 lb. 3¼ oz. (1,900 Gm.), was jaundiced but did well under incubator care. Her second delivery followed a surgical induction done because of a rise of antibody titer from 1:20 to 1:28 during the eighth month of pregnancy. This infant weighed 5 lb. 14 oz. (2,700 Gm.) and was reported by the physician in attendance as "very ill from erythroblastosis, and four replacement transfusions were necessary." The patient at present seems to be doing well but has an Rh antibody titer of 1:512. What type of induction would be advisable, and when? Is cesarean section indicated? Is sterilization indicated? What are the criteria for replacement transfusions, and what is the method for calculating the amount of blood to be given?*

Morris Powell, M.D.,
St. Anthony, Newfoundland, Canada.

Answer.—Before specifically answering the questions raised in this query, some comments appear in order regarding the induction of labor in the second pregnancy of this patient, resulting in the birth of a premature infant. Today it is generally agreed that adding the insult of prematurity to the injury of hemolytic disease of the newborn (fetal erythroblastosis) considerably aggravates the prognosis and hence should not be deliberately brought about except in rare circumstances mentioned later on. It is conceivable, although not subject to proof, that, if the infant had been permitted to go to term, the disease, although present, might have been less serious than was reported. Furthermore, it must be mentioned that a rise of antibody titer from 1:20 to 1:28 appears to this consultant of doubtful significance, since it is well within the technical error of any titration method used for Rh antibody determinations.

A great deal of the prognosis for the present pregnancy depends on the zygosity of the patient's husband for the Rh factor. Information on this point may be obtained by testing the husband's Rh type, which may have to include tests for the hr′ and hr″ factors and tests of the Rh types of his parents, if available, and of the first child. If either of his parents or the first child is found to be Rh negative, this proves that the patient's husband is heterozygous Rh positive, and hence she can have Rh-negative children who will not be endangered by disease. Another important prognostic factor depends on the decision as to whether a rise in the Rh antibody titer has actually occurred during the current pregnancy, as is suggested by the titer of 1:512 reported now in contrast to the titer of 1:28 during the second pregnancy. However, only simultaneous titration of the two specimens carried out in the same laboratory can definitely prove this point. If a rise in antibody titer did occur, this would weigh heavily in favor of the fetus that is currently carried being Rh positive.

For the reasons mentioned above, one should not consider premature termination of the pregnancy by cesarean section or any other method of induction, merely because of the presence of a high titer of Rh antibodies. The only situation in which such steps are indicated concerns Rh-sensitized expectant mothers who have previously experienced fetal loss due to hemolytic disease of the (fetus and) newborn, with stillbirth occurring close to term, and whose husbands are most likely homozygous Rh positive. Statistics based on large series of cases show that, after an Rh-sensitized woman has had a stillbirth, in a subsequent pregnancy permitted to go to term she still has approximately one chance out of three of giving birth to an Rh-positive live child, amenable to successful treatment. Hence, even in such cases the prognosis need not be invariably hopeless. For the same reason, the mere fact that maternal Rh sensitization was responsible for one previous neonatal death does not appear to this consultant to represent an indication for sterilization.

Further recommendations for the current pregnancy are as follows: Determination of antibody titers should be repeated at monthly intervals, since a definite rise of the titer occurring during this pregnancy strongly suggests that the fetus is Rh positive. The patient should be permitted to carry to term. As soon as possible after birth, the Rh-type and direct antiglobulin (Coombs) tests should be done on the cord blood. If the infant is Rh positive and shows a positive Coombs test, a replacement transfusion should be carried out as soon as possible, even in the absence of any other abnormal clinical and laboratory findings. This recommendation is based on the fact that this condition represents latent hemolytic disease, which offers the best chance for complete recovery when treated as early as possible. The blood to be used must be Rh negative, preferably not older than three days, and must be compatible when cross matched with the serum of the infant's mother.

In general, indications for replacement transfusions include the following conditions: (1) abnormal clinical findings, such as hepatomegaly, splenomegaly, purpura, and local edema; (2) abnormal laboratory findings, such as hemoglobin level below 14 Gm. per 100 cc. and rising bilirubin level within the first six hours; and (3) history of a previously born sibling affected with hemolytic disease, followed by birth of another Rh-positive infant showing a positive Coombs test, even in the absence of clinical or laboratory evidence of disease. It is the last-named indication that has been used for the case under discussion. In order to bring about an efficient replacement of the infant's blood, at least 70 to 80 ml. of blood should be used per pound of body weight of the infant.

RH EFFECT OF TRANSFUSION SEVENTEEN YEARS AGO

To the Editor:—*Could a blood transfusion given to a mother 17 years ago have any effect on a newborn infant? The mother is Rh negative, and the father Rh positive; the child is premature and icteric.* *N. M. Freund, M.D., St. Louis.*

Answer.—A blood transfusion given to a mother 17 years ago could have an adverse effect on a subsequently born baby. At that time (1940) the discovery of the Rh factor had just been announced, so that Rh typing before giving a blood transfusion had not yet been introduced. Since six out of seven individuals are Rh positive, an Rh-negative person given a blood transfusion in 1940 would therefore be apt to receive Rh-positive blood and in this way could become sensitized to the Rh factor. When such a sensitized Rh-negative woman is mated later to an Rh-positive man, during pregnancy the Rh antibodies in her serum could pass through the placenta and attach themselves to the red blood cells of her Rh-positive fetus. The resulting baby could then be erythroblastotic. Whether this is true in the case concerning which inquiry has been made can be determined by testing the mother's serum for Rh antibodies and by doing a direct antiglobulin test on the baby's red blood cells to determine whether they are coated by Rh antibodies. Tests for Rh antibodies are essential in order to show that the mother's being Rh negative is not merely a coincidental finding.

CHRONIC CATARRHAL DEAFNESS

To the Editor:—*In the Queries and Minor Notes section of* The Journal *for July 13, 1957 page 1292, the answer says that the condition characterized by a conduction type of deafness with retracted drums, which was formerly known as chronic catarrhal deafness, has been shown to be otosclerosis.*

The consultant goes on to say that the tubal or tubotympanic catarrh which accompanies some respiratory infections may become chronic. He describes treatment to prevent this chronicity. It is good treatment and effective in a good proportion of these cases but not all. He says nothing about those cases, fortunately not very common, which progress from a "cold" to a severe and permanent deafness of the conduction type in six or eight weeks. I cannot imagine anyone calling this acute otosclerosis, but, if so, it seems as logical as to say that all cases of conduction-type deafness with retracted drums are due to otosclerosis.

If there is any reliable evidence that all cases of the condition formerly called chronic catarrhal deafness are actually otosclerosis, I have overlooked it and would appreciate references to the literature in which it is recorded. If the evidence supports it, a lot of us will have to change our ideas about the pathology and treatment of all acute and chronic inflammatory conditions of the ear.

H. P. Merrill, M.D.
458 S. Spring St.
Los Angeles.

The above comment was referred to the consultant who answered the original query, and his reply follows.—Ed.

To the Editor:—*The first paragraph of the original answer, starting with "Chronic catarrhal deafness," is inaccurate because of two accidental omissions. It should read as follows: "Chronic catarrhal deafness was formerly the exclusive diagnosis used for that clinical picture consisting of a conduction type of deafness with retraction of the tympanic membrane. The advent of the Lempert fenestration operation and the more recent stapes mobilization operation have revealed the proper diagnosis in many of these cases to be otosclerosis with bony fixation of the stapedial footplate in the oval window."*

In answer to the more recent query, otosclerosis and chronic catarrhal otitis media may coexist in the same ear at the same time (Kerrison: Diseases of the Ear, ed. 4, Philadelphia, J. B. Lippincott Company, 1930, p. 255). In chronic catarrhal deafness, fibrosis frequently results, with the formation of fibrous adhesions bringing about a fixation of the ossicular chain and/or an immobilization of the secondary tympanic membrane (Coates and others: Otolaryngology, Hagerstown, Md., W. F. Prior Co., Inc., 1956, vol. 2, chap. 2). If the adhesions do not involve any of these structures, little or no deafness will result. As for the treatment of the chronically deafened ear, owing to a catarrhal otitis media following a cold six weeks previously, catheterization and inflation of the middle ear and pneumomassage may be employed. If there is a stenosis of the eustachian tube, then eustachian bougienage may be carried out. Treatment of chronic catarrhal deafness has been generally disappointing. It is agreed that deafness of slight or moderate degree, coming on rapidly six weeks after a cold, could not be due to otosclerosis, because otosclerosis is a slow progressive disease rather than an acute one.

RESEARCH REVIEWS

From time to time there will be published in this section of THE JOURNAL *brief but not necessarily complete reviews of some of the newer clinical aspects of medical research and practice. This material is gathered specifically for* THE JOURNAL.—ED.

PAIN

Sir Thomas Lewis once said that pain is the interpretation that the cerebrum gives to certain sensory stimuli. Since then, much work has been done, but even today H. K. Beecher,[1] Harvard Medical School, Boston, concludes that "pain cannot be satisfactorily defined, except as every man defines it introspectively for himself." According to the same worker "no convincing demonstration has yet been given that the pain threshold is a constant from man to man, or from one time to another in a given man." It is difficult to measure pain in man and to substantiate the relationship between the pain threshold and the action of analgesic agents. In recent years, many attempts have been made by ardent workers in this field to measure pain and its relief in man quantitatively.

In experimental animals, reproducible results have been obtained by various workers. A method that has been widely used is the "hot-plate" technique in its various modifications.[2] A mouse is placed on a smooth metal surface kept at 55 C for not more than 30 seconds. It manifests discomfort by characteristic movements of the hind-limbs, and the time ("reaction time") of this effect is recorded. Analgesia is indicated by significant lengthening of this reaction time.

In a modification of the method of D'Amour and Smith, which was itself adapted from the work of Hardy, Wolff, and Goodell, rats are used.[3] The rat is held in a cylindrical holder of perforated zinc; its tail lies along a channel formed by two strips of asbestos. About 1.5 in. from the tip of the tail, a hole in the asbestos channel allows the heat from a small electric coil which is placed beneath it to rise and heat the tail. After an interval, the animal withdraws its tail from the channel with a sudden and characteristic flick. Again, this interval is timed and is called the "reaction time." The effect of various analgesic drugs can thus be compared. Modifications of this method have been introduced in recent years and are now used.[4]

Tests are also used in experimental animals that do not involve thermal stimuli. In the tooth-pulp method originally described,[5] holes were drilled into the pulp to allow electrical stimulation of the sensitive area. More recently, metal fillings have been inserted into holes drilled in the teeth and are electrically stimulated. It has been reported that this allows the determination of the threshold effect of analgesic drugs in animals.[6] Electrical stimulation of metal fillings in teeth has also been studied in man.[7]

The "writhing syndrome" is produced in mice by intraperitoneal injection of 2-phenyl-1, 4-benzoquinone; after 3 to 10 minutes, and lasting for more than one hour after the injection, the animals show characteristic intermittent contractions of the abdomen, twisting and turning of the trunk, and extension of the hind legs. Various analgesic drugs prevent or abolish this writhing.[8]

To show the analgesic effect of drugs that is not usually demonstrable by other tests, the inflamed foot of the rat has been used. The analgesic activity of various salicylic acid derivatives has thus been determined. It is claimed [9] that, on the basis of this test, three types of analgesics can be differentiated: (*a*) the peripheral antipyretic-analgesics of the salicylate type that have an analgesic effect in the presence of inflamed tissue; they reduce the elevated temperature of inflamed tissue but do not reduce the temperature of normal tissue, and they reduce edema; (*b*) the central antipyretic-analgesics of the *aminopyrine* type that have an analgesic effect whether or not an inflammatory reaction is present; they reduce the temperature of normal or inflamed tissue, and they reduce edema; and (*c*) the narcotic analgesics of the morphine or alphaprodine class that have an analgesic effect whether or not an inflammatory reaction is present; they do not reduce elevated or normal temperature, and they do not reduce edema.

It has been pointed out that animal tests measure partly a "reaction" to a painful stimulus rather than "perception" of pain and that some involve, at least in part, a spinal reflex that has nothing to do with perception of pain.[10] It appears that also in man [11] powerful analgesics primarily affect the "reaction" to pain rather than its "perception." It is thus important to reduce "anticipatory anxiety." It is difficult to study anxiety associated with the anticipation of pain and the effect of drugs on it in man experimentally. In the white rat, a method has been devised to test behavioral reaction to analgesics.[12]

Animal tests now in use are helpful in the preliminary screening of analgesic drugs when several methods are employed. This, however, does not always hold true. In the case of nalorphine (N-allylnormorphine), for instance, it was shown that this substance is a powerful analgesic in man [13] although this had not been demonstrated satisfactorily in animals. Interest in the study of nalorphine as an analgesic was revived by H. Isbell, U. S. Public Health Service Hospital, Lexington. Nalorphine is remarkable in having analgesic action without giving rise to addiction.[14] Its analgesic effect in man is approximately equivalent to that of morphine. Its subjective side-effects are partly like those of morphine, but at the analgesic dose level they are largely dysphoric. This makes its clinical usefulness as an analgesic doubtful when used alone. Combinations of nalorphine with other analgesics devised in the hope of reducing side-effects have proved impractical.

Another drug that has been studied clinically is anileridine [1-(beta-[para-aminophenyl]-ethyl)4-phenyl-4-carbethoxypiperidine]. Given intramuscularly, 40 mg. of anileridine is believed to be equivalent to 100 mg. of meperidine in the relief of postoperative pain.[15] As a supplement to nitrous oxide–oxygen anesthesia, 50 mg. of anileridine given intravenously is reported to be approximately equivalent to 100 mg. of meperidine in reinforcing anesthesia.[16] I. M. Riffin and his colleagues,[17] St. Vincents Hospital, Montclair, N. J., list the following advantages of anileridine: used in conjunction with nitrous oxide, it enables the anesthesiologist to maintain the patient in the "light zone of anesthesia" for major and minor surgery; the patient usually awakens on the table; there is smoother recovery; and regulation of tachypnea, which is frequent in the analgesic level, is easily attained with anileridine. They mention these disadvantages: controlled or assisted respiration is required during most of the operation, and a larger total dosage of succinylcholine is usually required in abdominal procedures. These workers state that in the control of postoperative pain, relief is obtained within 10 to 30 minutes after intramuscular injection and lasts for two to eight hours, with an average of five to six hours. All patients in this study had received phenobarbital, 30 mg. three times a day. Observations at Lexington have led to the belief that anileridine has addiction liability like that of morphine or meperidine.

Dihydrocodeine has been used as an antitussive agent in Europe for many years, but its analgesic effects have been reexamined in this country only recently.[18] Its analgesic action is of somewhat shorter duration than that of an equivalent dose of morphine. It has been given for the relief of moderate postoperative pain, and also in cases of severe postoperative pain, in a dose of 30 mg. per 70 kg. of body weight. When the dose of dihydrocodeine is raised to 60 mg., there is very little increment in pain relief. In this higher dose, dihydrocodeine depresses respiratory minute volume and produces other undesirable, morphine-like effects. This can be avoided with the 30-mg. dose, with which side-effects are hardly greater than with a placebo. Since the increase in pain relief from the 30-mg. to the 60-mg. dose is so small at the expense of a significant increase in side-reactions, it is thought to be preferable to give dihydrocodeine in the 30-mg. dose. When adequate analgesia cannot be obtained with this dose, another more potent analgesic may be given in place of dihydrocodeine.

Dihydrocodeine can be used in cases where more potent analgesics are liable to cause addiction. In equianalgesic dose, its addiction liability is greater than that of codeine but less than that of morphine.

In England, it has been reported recently [19] that dihydrocodeine depressed respiration considerably less than meperidine. In the United States, dihydrocodeine was given in a dose of 30 mg. to 50 patients in normal labor.[20] It did not cause cardiovascular or pulmonary depression in the mother or in the heart sounds of the fetus. There was less over-all fetal depression with 30 mg. of dihydrocodeine than with 100 mg. of meperidine. During the postpartum period, dihydrocodeine effectively relieved the discomfort of uterine contraction.

Another drug that has been studied in this country is ethoheptazine (1-methyl-4-phenyl-4-carbethoxyhexamethyleneimine). It is said to give analgesia without producing sedation or disorientation. It has no anti-inflammatory action. It has been used in the relief of moderate and moderately severe pain.

In a recent double-blind study,[21] ethoheptazine was given to patients with chronic pain due to arthritis, metastatic carcinoma, cardiovascular disease, neurological disorders, phantom limb after amputation, and nonunion of fractures. The analgesic effect of 100 mg. by mouth was compared with that of 600 mg. of aspirin, 30 mg. of codeine sulfate plus 600 mg. of aspirin, a placebo, and a combination of 100 mg. of ethoheptazine with 600 mg. of aspirin. Ethoheptazine combined with aspirin gave greater relief of pain than ethoheptazine alone.

Ethoheptazine with aspirin was as effective as codeine with aspirin. It is thought that ethoheptazine does not give rise to addiction.[22]

The methadone derivative levo-isomethadone (levo-4,4-diphenyl-5-methyl-6-dimethylamino-3-hexanone) given subcutaneously is thought to be equivalent in its analgesic effect to morphine. The optimal dose is 10 mg. It produces fewer symptoms than morphine, especially less nausea and vomiting. The decrease in oral temperature, oxygen consumption, resting respiratory minute volume, and respiratory response to 5% carbon dioxide is as great as with morphine.[23] The addicting properties of this drug are of the same order as those of morphine.

N. B. Eddy and his colleagues prepared acetylmethadols and described the results of their laboratory examination.[24] Alpha-acetylmethadols were tested in man by Keats and Beecher,[25] who concluded that the margin of safety was too narrow for clinical use. Given by mouth in a dose of 5 or 10 mg. three to five times a day, alpha-*dl*-acetylmethadol is effective against chronic pain but is not infrequently accompanied by morphine-like side-effects.[26] In the relief of postoperative pain, 50 mg. of alpha-*l*-acetylmethadol subcutaneously is thought to be equivalent to 10 mg. of morphine. Sometimes this drug has remarkably long-lasting effects and through cumulative action produces a dangerous comatose state resembling morphine poisoning. Alpha-acetylmethadols are addicting.

Another methadone derivative, dipipanone (*dl* 4,4-diphenyl-6-piperidino-3-heptanone) has been prepared as a racemate. Its analgesic effect has been tested in man in double-blind studies against chronic pain and against postoperative pain. For chronic pain and acute moderate pain, the optimal analgesic dose is thought to be 20 to 25 mg.[27] With doses of this order, side-effects have been minimal. The addiction liability of dipipanone is approximately equal to that of morphine.

Oxymorphone (dihydrohydroxymorphinone) has been tested clinically against chronic pain. It is a very potent analgesic; it has been estimated that 1.12 to 1.15 mg. is equivalent to 10 mg. of morphine.[28] The average effect in one series of cases was found to last 266 minutes when 1 mg. of oxymorphone was given and 277 minutes with 12 mg. of morphine. With equivalent dosage, the incidence of side-effects is about the same with oxymorphone and morphine. The addiction liability of oxymorphone is considerable.[29]

Another new analgesic that has been studied in man is propoxyphene (alpha-d-2-propionoxy-4-dimethylamino-1,2-diphenyl-3-methyl butane hydrochloride). A comparative study of this drug with codeine phosphate has been reported in THE JOURNAL recently.[30] The active isomer is now referred to as dextro-propoxyphene.

Dextro-propoxyphene by mouth is as effective as codeine, milligram for milligram, in the relief of chronic pain. Its side-effects in an oral dose of 65 mg. are, in general, less than with the same dose of codeine. The addiction liability of dextro-propoxyphene is considerably less than that of codeine.

Before a new agent is introduced, its addicting properties are tested. The initial estimation of addiction liability of analgesic drugs in the United States is based largely on the results of clinical studies on volunteers at the National Institute of Mental Health Addiction Research Center, United States Public Health Service Hospital, Lexington, Ky. The purpose of these addiction liability tests is to delineate the safety of a new agent relative to its possible beneficial effects. To supplement clinical tests, laboratory methods have been developed during the past seven years at the department of pharmacology, University of Michigan Medical School, Ann Arbor, under the direction of M. H. Seevers. Studies at this center have revealed that the rhesus monkey parallels man in important respects concerning development of tolerance to and physical dependence on the several classes of potent analgesic narcotics. As a result of these observations, new compounds are now sent to Ann Arbor for animal testing as coded samples and studied on a double-blind basis. This furnishes additional information useful in screening new compounds for their potential usefulness and a more accurate evaluation of their addiction liability. Before reaching the physician, every compound undergoes extensive clinical trial, since the laboratory data do not furnish information concerning pleasant subjective responses to these drugs, an aspect of the general problem that is highly important in the assessment of addiction liability.

In a discussion of analgesic drugs it is customary to exclude agents that act by removing the cause of the pain and agents that block pain impulses peripherally.[1] A method of reducing pain that has attracted increasing attention recently may be mentioned—hypnosis. Apart from its use in obstetrics and dentistry, hypnosis has found its way into the wider field of surgery. W. S. Kroger, Chicago Medical School, has made a film of a patient who underwent thyroidectomy without premedication or anesthetic. There was hardly any bleeding. Other operations, such as a cesarean section and hysterectomy, and biopsies of the breast for carcinoma, have been performed in a similar manner with the patient in hypnosis.[31]

Present methods of testing analgesic drugs in man and the study of pain relief obtained by hypnotic suggestion both point to the multiplicity of influences that may come into play clinically.

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WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Higley Regrets Doctors' Criticism of VA Policy . .

Influenza Vaccine Makers Asked to Follow State, Local Priorities . .

Wants Status of Non-Service Patients Clarified . .

AEC Buys Radiation Equipment for Medical Schools . .

PREDICT NO HIGH MORTALITY RATE IN ASIAN INFLUENZA

Continuing to record and analyze information coming in from all over the country, the U. S. Public Health Service says there is a gradually increasing incidence of Asian influenza, but that no high mortality rate is in sight.

Early in September cases were being counted by the tens, or possibly the hundreds. By the end of September they were being counted in the hundreds of thousands, Mississippi alone having an estimated increase of about 76,000 within one week. Increasing school absenteeism was reported from Oregon, Colorado, Mississippi, and Texas, with a few California industries also showing more absenteeism.

The service plots the course of Asian influenza epidemics on the basis of reports received from state health departments. The following report is a typical summary of one week's findings in mid-September.

New York City reported 144 cases of influenza-like disease among arrivals from Europe, and 2 confirmed cases among city residents. At the same time the New York state department of health cited influenza-like illnesses in two camps of migrant workers from Alabama and Florida.

Among 250 fishermen in a small fleet off the southern coast of New Jersey 45 cases were reported, with two patients hospitalized with pneumonia.

In an Indiana college of 800, a total of 100 students were ill, and Illinois confirmed 2 cases from a number of sporadic attacks. Minnesota reported 35 clinical cases of influenza among 92 foreign exchange students arriving for the opening of the University at Minneapolis. Missouri and North Dakota had influenza cases scattered throughout the state, but with no confirmations as Asian influenza. Two adjacent counties in South Dakota had outbreaks, but here serological tests confirmed six cases.

Tennessee had no extensive outbreaks during August, but more than 500 sporadic influenza cases by the middle of September, with 15 confirmations. The disease is widespread in New Orleans and other parts of Louisiana, Arkansas has two confirmed cases, and members of the Florida University football team were stricken.

Migrant workers in Colorado also were affected, 125 cases among 545 individuals, Wyoming has had a few cases (unconfirmed), and New Mexico reports cases in 17 counties.

Among girls attending a California convention, the attack rate was an unusual 89%; one death in this group possibly attributable to Asian influenza, but otherwise almost no complications.

The Panama Canal Zone reports an unusually high incidence of upper respiratory diseases, involving 25 to 30% of the population, mostly adults, but efforts to confirm Asian influenza were not successful. In Puerto Rico, cases increased from 10 to 14,674 in less than a month. Says the health bureau: "Influenza has now spread throughout Puerto Rico."

INFLUENZA VACCINE MANUFACTURERS URGED TO FOLLOW STATE PRIORITIES

In an effort to insure that priority groups within a state will be the first to receive Asian influenza vaccine, the Public Health Service has asked the six manufacturers of the vaccine to follow priority recommendations of state and local advisory committees. Earlier, the manufacturers had adopted a voluntary system of allocating vaccine to states, based on the states' population.

The PHS and most state and local advisory committees have recommended generally that first vaccinations go to personnel in the health fields who will be needed to care for the sick and to patients who are a high medical risk, then to those needed to maintain essential community services, such as police and fire departments.

Requests that the priorities be carried further—to the state and local levels—were made to the manufacturers in letters from Dr. Leroy E. Burney, the surgeon general. "It is suggested particularly that you be guided to the maximum extent possible by the determinations of state and local advisory groups regarding which orders within states and communities should receive priority," Dr. Burney told the producers.

(Continued on next page)

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The PHS announced that 19 states have reported formation of advisory councils to make priority recommendations and that some communities have set up councils to suggest distribution patterns on the city and town level.

"We believe the listing of essential personnel within a community can be done best at the community level," Dr. Burney explained to the manufacturers.

VA ADMINISTRATOR REGRETS DOCTORS' STAND ON HOSPITALIZATION

Veterans Administrator Harvey Higley regrets that the nation's feelings of "obligation and gratitude" toward veterans seems to have lessened noticeably in the last three years and that "some medical men" are "attacking medical care for veterans, with particular reference to those having non-service connected disabilities."

Addressing the American Legion convention, Mr. Higley declared in part:

"A mere decade ago, there were few who would challenge the legislation, in effect since 1924, which provides that a veteran with a non-service-connected disability has the right to enter a VA hospital if he cannot pay for the care elsewhere and if VA has a bed available.

"Yet, during the past three years, public statements by certain individuals and responsible organizations have contended that the non-service-connected should have no hospital benefits. Some medical men, who usually are keenly aware of the need for proper public relations, now apparently believe that the public no longer is greatly concerned with the veteran and his problems. And so they no longer hesitate to attack medical care for veterans, with particular reference to those having non-service-connected disabilities."

Mr. Higley also challenged the recommendation of the Bradley Commission that "The provision of constructive and adequate readjustment benefits, as a rule, should discharge the government's obligation to war veterans who have no service-connected disability."

The VA administrator asked whether this philosophy, "quite contrary to laws on the books for many decades," is to be today's thinking. The laws in question authorize the VA to hospitalize non-service-connected patients if there is a bed available and if the veteran cannot afford to pay. Mr. Higley believes Congress should clarify the situation. He explains:

"It seems to me that while there would be the cost of new construction, there would be no additional operating cost if we closed down the 3,906 unneeded tuberculosis beds . . . beds located where conversion to other use would not be practical . . . and replace them with 33-hundred other beds which would fill a great need . . . if the policy shall be to take care of sick and disabled non-service-connected veterans on the basis of our present laws.

"If the policy shall be not to take care of the non-service-connected, this should be frankly stated, so that others . . . States, counties and cities . . . may take up the load."

At one point Mr. Higley told the Legion:

"The essential elements of veterans' programs must be safeguarded. Weaknesses must be eliminated. We cannot afford to bury our heads in the sand and believe that everything is perfect . . . that these programs are sacred and therefore untouchable. There always will be critics, but let's not give them room for justifiable criticism."

AEC TO MAKE GRANTS TO MEDICAL SCHOOLS

Extending its present activities, the Atomic Energy Commission will make financial grants up to $250,000 to medical and other scientific schools to help them buy specialized radiation equipment and teaching aids in this field.

In outlining the program to encourage study of radiobiology and use of radioisotopes, the AEC said the aid would go to accredited schools of agriculture, veterinary medicine, and public health, as well as medicine, and to departments of biophysics and biology in schools and colleges.

Applicants must be nonprofit institutions, and with faculties qualified to conduct courses in nuclear technology as applied to the life sciences. The commission said in considering applications it will take into account the scope and objectives of the teaching program, the educational level of the program, and the number of students to be served.

The AEC already is sponsoring on-the-job training in its laboratories; special training in use of radioactive materials at Oak Ridge Institute of Nuclear Studies; fellowships in radiological physics, industrial hygiene, and industrial medicine; radiobiology training for high school science teachers; and radiobiology lectures conducted by AEC scientists in colleges and universities.

MISCELLANY

The Children's Bureau has asked three national groups for advice on the theme for the 1960 White House Conference on Children and Youth. They are the Council of National Organizations, the National Council of State Committees on Children and Youth, and the Interdepartmental Committee on Children and Youth. A national advisory committee on the conference, to be appointed by the President, will decide on the theme.

The Veterans Administration reports development of a tiny electronic meter for measuring blood pressure which "has opened a new field for understanding heart failure, shock, and other blood circulation disorders." The meter, about the size of the end of a match stick, is inserted into a vein, and may be gently pushed up and into the chambers of the heart and blood vessels of the lungs. The VA says it causes no pain or discomfort and that tissues of the veins are not damaged.

The National Red Cross has reduced its standard first-aid course from 18 hours of instruction to 10, in an effort to encourage attendance by those for whom time is a problem, particularly public employees. The Red Cross first-aid textbook also has been changed to reflect the shorter course.

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High rate of success – Dr. Decker's new study confir the effectiveness of these unique agents in both acut and chronic infections. Of 65 women considered to adequate treatment,* 63 were freed of trichomoni "There was immediate relief of symptoms . . ." and post-treatment recurrences.

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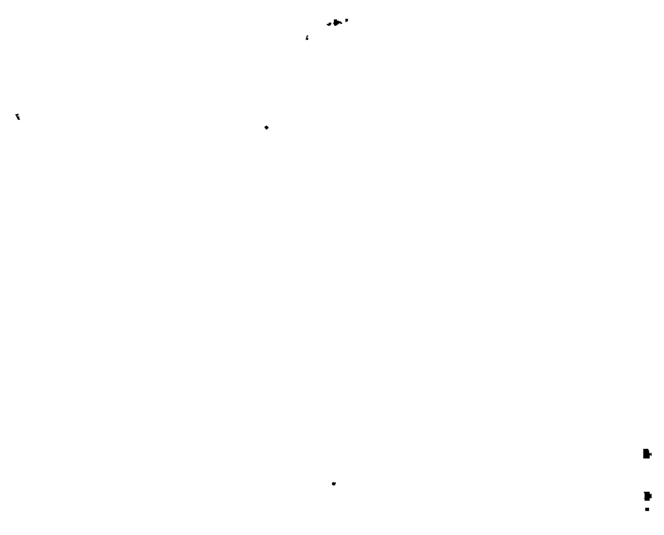

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*For a small percentage of women who have an involvement of cervical, vestibular or urethral glands, additional measures are required.[1,3,4]

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CHANGING FORMS AND CAUSES OF PULMONARY INSUFFICIENCY IN PRESENT ERA OF MEDICINE

Israel Rappaport, M.D.
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The incidence of insidious protracted development of pulmonary insufficiency is increasing, due to the delayed effects of pulmonary infections attenuated by chemotherapy, and to the cumulative effects of inhaled air pollutants. We are not dealing with complicating infections but rather, the signs and symptoms observed are the manifestations of pulmonary insufficiency itself. Pulmonary insufficiency implies disturbances in the autonomic functions of the structures at the bronchioloalveolar junctions. The exact nature of these functions is not known, but there is ample evidence that they are essential to normal distribution of ventilation and circulation throughout all parts of the lungs. The disturbance of this critical function implicated in pulmonary insufficiency may best be designated by the least prejudicating term of "bronchioloalveolar dysfunction."

AN OUTSTANDING new aspect of chronic pulmonary disease is the present rising mortality from cor pulmonale now chiefly attributed to chronic bronchitis and emphysema. Current experience indicates also a rising incidence of the latter and a change in the etiology of both. This present increase of bronchitis and emphysema comes from two new sources, namely, pulmonary damage from infectious diseases attenuated by modern chemotherapy and pulmonary damage from the effects of increased air pollution.

While the clinical picture leading to cor pulmonale is now often discussed in such terms as bronchial spasm, pulmonary insufficiency, and pulmonary hypertension, it is in general referred to as chronic bronchitis and/or emphysema. The latter are spoken of as specific disease entities and are looked upon as the primary causes of cor pulmonale by reason of mechanical obstruction to ventilation and circulation which they are presumed to create in the chest.

It is our belief that the clinical picture leading to cor pulmonale is now misinterpreted as chronic bronchitis and/or emphysema. This has resulted not only in confusion regarding the criteria of the latter —but also in a misunderstanding of the nature of pulmonary insufficiency as well as of causes of cor pulmonale. In this paper we are offering our interpretation of these conditions which we believe should help to clarify the present confusion.

Clinical Forms of Pulmonary Insufficiency

For over two decades we have observed a large number of patients with a variety of bronchopulmonary diseases, and in many of these we have been able to follow a progression to ultimate pulmonary failure with cor pulmonale. We have observed that, when these patients first began to show signs of pulmonary insufficiency, they all presented the same clinical picture commonly associated with bronchitis and emphysema, regardless of the widely different nature of the primary bronchopulmonary disease which led to the insufficiency. At first we accepted the prevailing view that this clinical picture was due to complicating respiratory infections. However, with the advent of chemotherapy, when it became possible to control complicating infections, we found that in most cases this had little effect upon the progressive clinical picture. We finally realized that we were not dealing with complicating infections but that the signs and symptoms observed were the manifestations of pulmonary insufficiency itself. Furthermore we observed that, in patients with reduced pulmonary reserve due to past bronchopulmonary diseases, complicating bronchial infections are more apt to arise after onset of pulmonary insufficiency than before. The temporary aggravation of symptoms and signs produced by the complicating infection is readily controlled by chemotherapy with little effect on the previous status of progressive pulmonary insufficiency.

Our clinical experience has led us to recognize three forms of this clinical syndrome: (1) the acute, which occurs in bronchial asthma; (2) the subacute, generally recognized as asthmatic bronchitis; and (3) the chronic, which is now commonly associated with bronchitis and/or emphysema. It has been a long-established fact that there exist fluent transitions between these three forms and that one can go over into the other.[1] The clinical features of all of these include signs and symptoms of bronchial dysfunction and of pulmonary hyperinflation. There is often variable predominance of one or the other, that is, the more fixed the overdistended lungs become, the less marked are the bronchial signs (wheezing, rhonchi) and vice versa.

Here we are concerned chiefly with the chronic form of the pulmonary insufficiency syndrome, which may develop on the basis of practically all pulmonary diseases that lead to loss of large parts of normally functioning lung parenchyma. It is particularly frequent in diseases that tend to involve the lungs diffusely, such as fibroses, granulomatoses, and other densely disseminated lesions, regardless of etiology. In most instances the progress of chronic pulmonary insufficiency appears clinically as an insidious and protracted process which may truly simulate chronic bronchitis for long periods of time until manifestations of the fully developed pulmonary insufficiency reveal themselves. Clinical experience also indicates that frequently this clinical syndrome may develop abruptly within a few weeks or months. This is apt to occur particularly in those of middle age after an acute pneumonic or pleuritic process or other medical or surgical condition, or with pulmonary complications of congestive, embolic, or metastatic nature. Here the symptoms of cough and expectoration with progressive dyspnea on effort appear rapidly and concomitantly. Whether of gradual or rapid development, this clinical picture reveals the imminence or presence of lack of pulmonary reserve.

The assumption that the clinical picture of chronic bronchitis and/or emphysema develops on the basis of bronchitis proper dates back to the preantibiotic era when bronchitis often became complicated by recurrent pneumonitic and suppurative processes which often led to destruction and/or fibrosis of much lung parenchyma. The latter then resulted in depletion of pulmonary reserve and so in pulmonary insufficiency which simulates chronic bronchitis and/or emphysema. In the present era of chemotherapy these severe complications of bronchitis proper are usually controlled and their serious sequelae are becoming less frequent. In cases where pulmonary insufficiency develops we must look for reasons of loss of pulmonary reserve other than that of bronchitis proper.

Misinterpretation of Chronic Bronchitis

The term bronchitis refers to an inflammatory process involving mainly the larger branches of the bronchial tree, and rarely extending to the finer bronchioles. This is an exceedingly common clinical as well as autopsy finding. It is a trivial disease for which people usually do not seek medical aid. Innumerable people, especially smokers, go through life indulging in rather than suffering from much cough and expectoration. The sputum consists of inflammatory products, is mucopurulent in character, and is often copious in amount. Chronic bronchitis in the form here described is especially frequent in people of advanced age and as such is not a disabling disease. Disabling chronic bronchitis is said to be due to airway obstruction leading to obstructive emphysema, although it has been a long-known fact that bronchitis is more often the result than the cause of emphysema.[2]

Misinterpretation of Obstructive Bronchitis and Obstructive Emphysema

[illegible] concepts of the interrelationship between bronchitis and emphysema are still based essentially on the old theory of Laennec, namely, that of obstructive bronchitis leading to mechanical overdistention of the lungs. Recently this has been modified to the theory of functional airway obstruction spoken of as "bronchial spasm" or "air-trapping" by disturbance of normal bronchiolar function. Even according to this theory, airway obstruction leading sooner or later to mechanical overdistention of the lungs is the key to the development of emphysema. Bronchitis and emphysema are thus assumed to be inseparably linked as essentially consecutive phases of one and the same clinicopathological process.

In practice this interpretation has led to confusing the criteria that distinguished chronic bronchitis from emphysema. It is not possible to tell when bronchitis ends or when emphysema begins. Characteristic of this confusion is the fact that the same clinical picture described by some as chronic bronchitis is designated by others as emphysema, each taking for granted the presence of one or the other condition as a complication.[3] Recently the term "bronchospastic disease" was proposed as a way out of this confusion.[4] However, as this new term is interpreted, it is just another name for the same old conditions and refers to variable combinations of bronchitis and emphysema on the same theory of pathogenesis.

It should be noted at this point that there is no factual evidence for the existence of bronchospasm in asthma, bronchitis, or emphysema, as is generally assumed. Nor is there any morphologic evidence of actual obstruction of the bronchial tree. Obstruction to airflow is inferred on the basis of the clinical features, the signs and symptoms of disturbed ventilation of pulmonary hyperinflation, and the viscidity of secretions. Clinically the distinction between obstructive bronchitis and emphysema is generally most difficult. Reliance is now put on functional testing, but the one test believed to be reliable for detecting the presence of emphysema, namely, determination of the over-all diffusing capacity, is still in the experimental stage.[5]

The current trend to discard the term obstructive emphysema in order to properly emphasize obstructive bronchitis as the primary disease is objectionable chiefly because of an implied association with bronchitis proper. There is nothing in the clinical entity of bronchitis as described above which implies that it usually leads to obstructive bronchitis. On the contrary, clinical experience indicates that obstructive bronchitis is more often the result rather than the cause of pulmonary emphysema. Certainly bullous change in emphysema must be considered conclusive evidence of bronchial obstruction, and both this and obstructive bronchitis are sequelae rather than causes of pulmonary emphysema. The presence of pulmonary emphysema is usually revealed first clinically by symptoms and signs due to bronchial obstruction. Extensive emphysematous changes may be present without clinical signs and symptoms which arise promptly upon advent of complicating bronchial obstruction.

The term obstructive emphysema refers to mechanical overdistention of airspaces behind obstructed airways permitting more ingress than egress of air. This is mostly a localized process caused by local involvement of bronchi. It occurs in a great variety of pulmonary diseases, mostly in the absence of emphysema. It often also occurs as a complication of emphysema when localized bronchial complications aggravate the enlargement of airspaces due to emphysema and produce localized bullous changes. In such cases, in the presence of the two combined forms of airspace enlargement, it is often impossible to separate the distending effect of obstructive bronchitis from the emphysema proper (structural defects) which we will discuss later. We have long emphasized the importance of recognizing the enlarged airspaces that are of mechanical origin and chiefly of a localized nature. For these we have proposed the term "airspace disorders." They are frequent clinical findings due to localized obstructive bronchitis, and they occur mostly in absence of emphysema and are often confused with and misinterpreted as such.[6]

From the foregoing it may be concluded that the clinical entity of chronic bronchitis does not imply bronchial spasm; that obstructive bronchitis and obstructive emphysema are clinically indistinguishable from one another; that obstructive bronchitis, contrary to general belief, is usually the effect of obstructive emphysema rather than its cause; and that the effects of obstructive bronchitis are better described as "airspace disorder," which is not to be confused with emphysema proper. Accordingly, if chronic bronchitis does not lead to obstructive bronchitis and if the latter does not lead to emphysema proper, then the question naturally arises as to what is the nature of the clinicopathological process leading to pulmonary insufficiency and cor pulmonale.

Manifestations of Pulmonary Insufficiency

The basis for the above-described confusion lies, we believe, in wrong interpretation of the manifestations of pulmonary insufficiency as those of chronic bronchitis. In fact we lack proper terms for these evidences of functional disturbance simply because we are ignorant of the true nature of the autonomic functions of the lung structures; also because disturbance of these functions, as revealed by symptoms and signs, is now misinterpreted as bronchial spasm and is assumed to be manifestations of obstructive bronchitis and emphysema.

Bronchioloalveolar Dysfunction.—We believe it to be a reasonable assumption that pulmonary insufficiency implies disturbances in the autonomic functions of the structures at the bronchioloalveolar junctions. The exact nature of these functions is not known, but there is ample evidence that they are essential to normal distribution of ventilation and circulation throughout all parts of the lungs. The disturbance of this critical function implicated in pulmonary insufficiency may best be designated by the least prejudicating term of "bronchioloalveolar dysfunction." The clinical symptoms and signs suggest that it includes increased bronchomotor and bronchosecretory activity manifesting themselves in chronic cough and expectoration. These symptoms are common with bronchitis, hence the confusion with the latter. Also bronchioloalveolar dysfunction is associated with progressive pulmonary hyperinflation which is at first reversible but later becomes irreversible. Progressive dyspnea then becomes a prominent symptom. The combination of irreversible pulmonary hyperinflation with bronchioloalveolar dysfunction is what we clinically recognize as pulmonary emphysema. In other words, clinically, emphysema becomes recognizable only by these

Other manifestations of pulmonary insufficiency mphysema, anoxia) are often found associated ith pulmonary hypertension, but their relationship only indirect. Perhaps that which is most closely lated to pulmonary hypertension is augmented ood flow from the systemic arteries. This suggests at systemic blood pressure transmitted mostly way of anastomoses between pulmonary and onchial arteries probably plays the key role in e origin of pulmonary hypertension.

Emphysema by loss of alveolar structures, pulmoary hypertension, and augmented blood flow from onchial arteries are three combined findings most equently observed in cor pulmonale. The usual terpretation has been that the sequence of events emphysema, hypertension, and finally augmented stemic blood flow. Recent observations in so- intralobar bronchopulmonary sequestration omalous systemic arteries of congenital lemonstrated the reverse sequence of nphysematous changes resulted from d supply. Similar emphysematous 1 observed also in lungs with hypo- e) pulmonary arteries leading to ronchial blood supply. In many ed the development of emphy- ormal lung areas under pleural which systemic blood flow in- reas so affected. Here too, we nce of events was most likely one a resulted from changes in blood

tulated that changes from pulmonary blood supply in any lung area may so bronchioloalveolar structures as to dis- functions and result in their eventual disappearance (emphysema) with all the previously discussed. Referring to these ted phenomena (clubbing, polycythemia) t publications, one of us [10] suggested that nomic function of the bronchioloalveolar es is regulated by a hormone carried to the ly by venous blood in the pulmonary arterial r bed. Interference with this autonomic funcver a large part of the lungs will manifest n all the evidences of pulmonary insufficiency ssed above. In final analysis then, cor pulle, too, would have its origins in pulmonary ficiency, i. e., loss of pulmonary reserve.

Recent Changes in Etiology

n the decade following the advent of modern emotherapy there became discernible a sharp op in mortality from acute and subacute bronchoulmonary infections, while at the same time there ccurred a sharp rise from cor pulmonale which has since then persisted. The connection between these events is obvious. More patients suffering from previously fatal bronchopulmonary infections now survive, later to become victims of pulmonary insufficiency leading to cor pulmonale. In fact this is true even of patients with far-advanced pulmonary tuberculosis whose life is prolonged by chemotherapy. In the latter, as well as in those with some destructive bronchopulmonary suppurations, there are demonstrable residues of fibrosis and emphysema which indicate the process leading to pulmonary insufficiency and cor pulmonale. A different effect of chemotherapy on inflammatory processes in the lungs was discussed by one of us [11] recently under the title "Chemotherapy and 'Vanishing Lungs.'" Clinical observations indicate that chemotherapy often produces emphysematous changes, probably by preventing dense fibrosis and favoring resolution and self-cleansing of the affected parts. We believe it is a reasonable inference that the same effect due to chemotherapy occurs to lesser degrees in a greater portion of cases which escape detection. Our observations lead us to infer that, in many cases in which bronchopulmonary inflammatory diseases have been attenuated by chemotherapy, subclinical forms of such acquired lung defects remain. By insidious protracted progress these become apparent much later, mostly in middle-aged patients presenting clinical features now generally recognized as chronic bronchitis and/or emphysema.

Even more characteristic of the present era is the prominent role of so-called irritative bronchitis from air pollution in the origin of chronic bronchitis and emphysema. In fact these two conditions are now increasingly spoken of as smokers' diseases.[12] Tobacco smoke is now looked upon as a most intense form of inhaled polluted air. Furthermore, "irritative bronchitis" resulting from air pollution has been prominently mentioned as a cause of pulmonary insufficiency in such diverse conditions as coal miners' dyspnea [13] and the attacks of fatal pulmonary insufficiency during the recent London smog.[14] In both instances we are dealing with injury to bronchioloalveolar structures which remains latent at the time of occurrence and later becomes manifest by subsequent cumulative effects. Clinical and pathological observations indicate that inhalation of injurious air pollutants may also cause damage to bronchioloalveolar structures that affects their function and results ultimately in pulmonary insufficiency.

It would appear then that in the present era of medicine there is an increasing incidence of insidious protracted development of pulmonary insufficiency due to the delayed effects of pulmonary infections attenuated by chemotherapy and to the cumulative effects of inhaled air pollutants. The number of people subject to the effects of these two new sources of pulmonary damage is very large when compared even with the present increased incidence of pulmonary insufficiency. Furthermore, there are very great individual differences in the evolution of the latter. In the majority of cases pulmonary insufficiency develops only with advancing age and depends obviously upon advent of the "involutional lung defect." In a minority of cases in which pulmonary insufficiency develops in young individuals, we must assume the previous presence of "developmental lung defect."

Summary

In the present era of medicine there is a notable increase in the incidence of pulmonary insufficiency leading to cor pulmonale. The clinical picture is usually misinterpreted as chronic bronchitis and/or pulmonary emphysema. We are dealing with the clinical manifestations of insidious protracted chronic pulmonary insufficiency consisting of the combination of bronchioloalveolar dysfunction (increased bronchomotor and bronchosecretory activity), pulmonary hyperinflation (emphysema) and augmented pulmonary blood flow from systemic circulation (anastomoses with bronchial artery). Pulmonary insufficiency is an indication of depleted reserves of normally functioning lung parenchyma. In the etiology of pulmonary insufficiency in the present era of medicine, an important role is played by two new forms of damage to lung parenchyma which remain clinically latent: (1) respiratory infections attenuated by modern chemotherapy and (2) inhalation of harmful air pollutants. The latter includes excessive smoking.

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Treatment of Sciatica and Herniated Disk.—Since sciatica may be caused by a wide variety of conditions, its treatment varies greatly. The treatment of sciatic pain associated with arthritis of the spine or of the articular facets, osteoporosis of the spine, Pott's disease, spondylolisthesis, malformations of the vertebrae, spinal cord tumor, metastatic carcinoma, telangiectasis of the cord, sacroiliac arthritis and strain, and musculoligamentous conditions relating to the low back, to mention only a few conditions, all have their individual problems. There can be little disagreement that uniformity in treatment is not to be expected in such a variety of conditions. For the treatment of herniated disk, medical measures are sufficient in most circumstances. The majority of cases do not require operation. It is a mistake to regard medical treatment as merely preliminary to eventual operation. Medical treatment alone is sufficient in 75 to 83 per cent of cases. It consists of complete bed rest, analgesics, and physiotherapy including radiant heat and hot tub soaks. . . . . Medical treatment must always be preferred in sciatica due to herniated disk except in those cases of completely extruded disk which have failed to respond to medical treatment, in instances of frequent recurrence, and in those cases in which the individual choice is for surgical rather than medical relief. . . . The duration of medical treatment varies from two to eight weeks, depending on the severity of the sciatic pain, with most patients recovering within four weeks. This compares very favorably with the results of surgical treatment.—B. J. Alpers, M.D., Low Back Pain and Sciatica: The Case for Medical Management, *Medical Clinics of North America,* September, 1956.

TRIGEMINAL NEURALGIA

SPECIAL CONSIDERATIONS OF NONSURGICAL TREATMENT

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Data regarding the effects of therapy in trigeminal neuralgia cannot be evaluated without knowledge of the spontaneous course of the disease. Analysis of 155 cases showed that 78 patients had experienced one or more spontaneous remissions lasting 6 months or longer and that 38 had had similar remissions of 12 or more months. This finding may have explained some reports of good therapeutic results from a variety of treatments, such as remissions lasting up to four years in 17 out of 39 patients after the extraction of apparently sound teeth. In patients who allowed many months to elapse before they sought treatment and who enjoyed long spontaneous remissions it could be assumed that the course of the disease would be somewhat benign. To tell whether a proposed treatment for trigeminal neuralgia is effective therefore requires a post-treatment observation period of at least six months and preferably a year.

It has long been recognized that the attacks of pain of trigeminal neuralgia may come and go for no apparent reason. "The duration of the attack is very indefinite, from one or two hours to several days, and its recurrence or exacerbation is alike in the day or night. . . . Equally uncertain is its period of return. As intimated, its revisitations are sometimes as regular as those of intermittents. But such instances are rare, and the interval may be a week, a month, a year or more. . . ."[1]

If a remission were to occur spontaneously at the time that some procedure was being carried out for the purpose of relieving the pain, the erroneous impression might be gained that the pain-relieving procedure was effective. A brief review of the history of various nonsurgical measures used in the past 100 years for the relief of pain of trigeminal neuralgia reveals that each agent has waxed and waned in favorable usage only to be replaced by a successor of equally dubious value. It is possible that the commonly occurring remission of pain has been an important factor in bringing about the premature conclusion that these remedies have been of significant benefit in the treatment of trigeminal neuralgia.

Inquiry into this matter has seemed worthwhile for the purposes of learning something of the natural history of trigeminal neuralgia, as it has been seen at the Mayo Clinic, and of discovering whether spontaneous remissions of pain are of such character as to create a problem in judging the effectiveness of a particular treatment for this condition. In an attempt to gain information along these lines we have studied the cases of 155 patients with trigeminal neuralgia seen at the clinic in 1953. We have not included the case of any patient with known intracranial tumor or aneurysm.

Review of Cases

The age of patients at onset of pain varied from 17 to 88 years. Although the disease is properly considered to be one of middle and later years of life, we found that 19 of the 155 patients, approximately an eighth of the total number, had noted onset prior to the age of 40 years. Seventy patients were men and 85 were women (table 1). Three patients had noted symptoms for 30 years or more, 10 for 20 to 29 years, 26 for 10 to 19 years, 40 for 5 to 9 years, 65 for 1 to 4 years, and 11 for less than 1 year. From these figures it cannot be assumed that spontaneous "cures" do not occur, but it seems reasonable to assume that such occurrences are rare.

TABLE 1.—*Age at Onset and Sex of 155 Patients with Trigeminal Neuralgia*

Patients, No.	Male, No.	Female, No.	Age at Onset, Yr.
1	..	1	17-19
5	3	2	20-29
13	4	9	30-39
27	16	11	40-49
62	24	38	50-59
34	17	17	60-69
10	5	5	70-79
3	1	2	80-88
155	70	85	

The right side of the face was involved in 92 patients and the left side in 63. Seven patients had bilateral involvement, and they were included in these figures on the basis of the side first involved. The initial pain was noted in the first division of

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By comprehensive medical care, I mean all those services by individual physicians and related professional workers, hospitals, nursing homes, and health departments that are required to extend the active life of older people. Obviously, no single individual or organization can provide all those services.

There is a growing awareness among the professions and the public that these services should be and can be planned, developed, and delivered by the community and its physicians—the state, the federal government, medical schools, and private organizations aiding and abetting the efforts of the community and the medical profession. The conviction that such community action is needed springs from the day-to-day experience of families, community agencies, and individual physicians in trying to obtain comprehensive care for the aged. And it springs from the nationwide experience of older people, their families, and taxpaying fellow citizens in trying to meet the costs of disabling illness.

Public Assistance

In a recent study of patients in nursing homes, the Public Health Service found that the average patient is 80 years of age and that more than half of the patients are supported by public assistance funds. Studies conducted by the Social Security Administration indicate that over 25% of persons accepted for public assistance give ill health as the cause of their dependency. Such findings emphasize the fact that old age for far too many of our people is almost synonymous with ill health and inadequate income. The economic burden of disability in older persons can be substantially lessened by comprehensive services for the aging in their own communities.

What can communities do in cooperation with their physicians to raise the health level of their older citizens and reduce the economic burdens of disability? In the first place, they must consider the totality of the problem, just as the physician must consider the whole individual in arriving at a diagnosis and instituting appropriate therapy. Since the health status of an older person is the sum of many factors, services must be planned to affect the whole—the physiological changes of aging and the psychological, social, and economic factors involved in producing the state of ill health or good health.

Planning for health of the aged, then, begins with a survey. Depending on the size and complexity of the problem, a survey can be made by teams ranging in size from a physician and a visiting nurse, supported by adequate biostatistical and clerical assistance, to the full complement of a community welfare council. In any case, the results will be far more satisfactory if the individuals involved represent the community at large and the various professions concerned in the physical, mental, and social well-being of the aged. The broader the representation on the survey team, the more comprehensive and—in the long run—the more effective will be the planning and the programs.

I want to emphasize strongly the need for active participation in any such surveys and programs by practicing physicians as individuals and as representatives of their medical societies. Indeed, there are too many instances in which needed services have not been developed because physicians have not been brought into the planning and program development at the earliest stages. It is all too common an error for community groups to plan health programs for physicians instead of with them, with the result that the key persons—the practicing physicians—in any program for care of the aging do not know what is expected of them, nor have they been consulted as to whether they can, professionally, deliver the services expected. The local health officer also is often neglected when a steering committee is organized. This too is unfortunate because the average health department does have skills and resources for organizing and developing community programs. It is a potential source of financial and professional assistance, both through its contacts with community institutions and through state and federal agencies.

In reverse, there have been equally short-sighted instances when public health and medical groups have attempted to develop community services without taking social welfare, industrial, and civic organizations in on the ground floor of their planning. The moral of these observations is that we are all in this together. We cannot carry out our responsibilities for the health of our patients or our communities without the help of other professional people and community leaders.

For example, one of the ideas now catching fire in a number of communities is the establishment of a "center" for the aging, where health counseling, group recreation, social casework service, nutritional advice, and referral to medically approved sources of care are provided. I have in mind the kind of place that older people can consider their own, a place where many of their needs can be met. A "center" of this type could eliminate the frequent referral of individuals from agency to agency with resulting confusion and frustration that often develops. Consolidated services for the aging could be operated by the local public welfare department or the health department, or both together. In communities with well-developed voluntary health and welfare services, it would be much more desirable for the united community services or the welfare council to operate such a center, with official and voluntary agencies jointly supplying whatever services or funds they can provide. As community organizations are now asking the public to subscribe to "united giving," so also the agencies could provide the greatest amounts of service to the most people at the least cost through a little "united giving" on their part.

Nursing and Restorative Care

Improvement of nursing home care is urgently needed in many communities. Training courses for the operators of nursing homes can be provided as part of a community's comprehensive program for health of the aged. Agencies responsible for the licensing and supervision of nursing homes and related facilities can provide many consultative services through local health departments. Public health nursing consultants, dietitians, sanitarians, and health educators all may have something to offer that will help the nursing home operators do the better job they would like to do in caring for their aged and infirm patients. The use of licensure to raise the standards of these homes is a practical point of departure, but results are more effective when it is not used as club but as an opening door to rendering services indirectly to the aging.

Home care programs, although varying widely in content and method of organization, offer excellent opportunities in the development of community services for the aging. Up to the present time, home care services have been provided chiefly for patients receiving public assistance or private welfare aid. If the values of auxiliary medical services in the home—nursing, physical therapy, and housekeeper services, to mention a few—are ever to reach the majority of disabled older people, they must be so organized and rendered as to attract the practicing physician and his patients.

No comprehensive health service for the aged will be complete without attention to restorative care. This begins with attention to the eyes, the ears, feet, and teeth—four organs that are neglected to an astonishing degree in older persons. Perhaps no single service can do more to reduce the amount of care that an elderly patient needs than provision of a hearing aid, a new pair of glasses, better dentures, or treatment of a painful bunion. An older person not otherwise handicapped can be transformed into a healthier, happier person by one or more of these simple aids. If he is otherwise handicapped, he will be able to function more freely and to cooperate more fully in efforts to treat the more serious handicap.

Of greatest importance in restorative care of the aged, however, is the goal each individual wishes to attain and will strive to attain. If health workers around our handicapped and bedridden older people continue to be satisfied just with keeping them alive and "comfortable," the accumulation of disability in the United States will never be reduced; instead, it will increase. If, however, we are determined to attain maximum restoration of function of which each patient is capable, we will reap a rich harvest of improved health and reduced costs of care.

Health workers in this field of restorative care are continually amazed at what "hopelessly" handicapped people can do if they are helped to help themselves. At one large city hospital (District of Columbia General Hospital), before active restorative services were begun, only 10% of the paraplegic patients were able to walk at the time of their discharge. Today, with vigorous restorative treatment, 90% of these patients leave the hospital walking and capable of complete self-care. And they stay in the hospital only half as long as patients with comparable handicaps stayed before restorative services were initiated. When we think what this means in terms of human values, to say nothing of savings in money, we are inclined to wonder why we have waited so long and why so few communities have taken up this challenge as well as others presented by the health problems of aging.

Summary and Conclusions

Planning health services for older people is part of the community's plan for health services to all individuals. It must take into account the totality of the older person's particular needs, especially with respect to prevention of chronic disease and restoration of the severely disabled. Preventive medicine has always been concerned with health promotion, aimed at improving the total well-being of the individual. Preventive medicine has been in the forefront of professional efforts to control disease.

Specialists in preventive medicine must give more leadership in their communities to the development of supplementary services. This will take time. Nevertheless, when we recall the successes achieved in the earlier efforts of public health workers and practicing physicians to control epidemics, we can anticipate similar benefits to the nation's welfare from joint action in health of the aging and chronic disease control.

Preventive medicine stands today at a critical point in its long and distinguished history. We have greater knowledge than ever before for the diagnosis, treatment, and prevention of disease. We have progressed far. But at this time, we need especially to think of medicine's role in our changing society and how we can shape that role for the greater good of society.

Changes come slowly—almost imperceptibly. They are not recognized by many of us until some critical questions arise affecting our particular sector in the medical world. Too often we have not had a part in helping to guide and direct these changes. If we are to have anything to say about them we must have ideas—imagination. We must do some thinking of our own as to what shall be preventive medicine's role in bringing to pass "complete physical, mental, and social well-being" as a standard of health in our country and throughout the world.

TREATMENT OF LOCAL ISCHEMIA DUE TO LEVARTERENOL (LEVOPHED) LEAKAGE WITH PIPEROXAN

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The vasodilating action of piperoxan hydrochloride has an important application in the treatment of the local ischemia that results when extravasations of levarterenol occur during intravenous injections. The ischemia is marked by coldness, pallor, and numbness and has sometimes gone on to necrosis. Three case histories are given to illustrate the prompt relief of the ischemia by piperoxan hydrochloride. The latter is injected subcutaneously in multiple punctures about the affected vein in the form of a solution containing 5 mg. in 20 cc. of sterile saline solution, and the amount needed varies from 20 to 30 cc. A satisfactory vasodilation occurs within one minute and is manifested by the return of a healthy pink color to the ischemic area.

Levarterenol (Levophed) bitartrate has deservedly become one of the mainstays in the treatment of the various types of shock due to surgery, trauma, overwhelming infections, drug reactions, and myocardial infarction.[1] However, one of the drawbacks has been the extreme care necessary to avoid infiltration which would often result in local ischemia and consequently necrosis of the skin. Even more baffling are the situations in which no infiltration has occurred, yet ischemia and subsequent necrosis of the skin has developed. Such incidents have limited the use of this lifesaving drug by many physicians. Recently two attempts have been made to counteract the local ischemia resulting from infiltration or extravasation of levarterenol solution by injecting phentolamine (Regitine) hydrochloride solution, either alone or with hyaluronidase.[2] The local use of hyaluronidase in this condition may possibly be harmful, as shown by case 1 presented below. In any case, it does not directly contribute to the satisfactory result.

Phentolamine was not immediately available when the patient described in case 2 below developed an ischemic area due to levarterenol infiltration, so piperoxan (Benodaine) hydrochloride was tried with immediate salutary effect.

Method of Use

A solution of piperoxan, 5 mg. in 2.5 cc. or ¼ of an ampul, was added to 17.5 cc. of sterile saline solution. The resulting dilution was 5 mg. in 20 cc. of solution. About 0.25 to 0.5 cc. of this solution was injected subcutaneously into the ischemic, cold area, first around the periphery and then within the area about 1 cm. apart. Within 30 to 50 seconds, each injected area developed a pink coloration and became warm to touch. More than 20 cc. may be used. Thirty cubic centimeters of this dilution was used in the patient in case 4 presented below, in which a very satisfactory result was obtained.

In the instance of case 3, a higher concentration of piperoxan was used (10 mg. in 5 cc.) added to 15 cc. of sterile saline solution for infiltration because of the large amount of levarterenol used in the infusion.

Case Reports

Case 1.—A 55-year-old woman was admitted to the hospital on March 23, 1957, with the complaint that 48 hours before she had developed a severe epigastric pain, which subsequently spread to both shoulders. Twelve hours before admission, the pain spread to both lower quadrants. The patient had a history of peptic ulcer years before, but she had had no pain of that type in the last few years. The patient was in shock and had a completely rigid abdomen.

A diagnosis of a perforated viscus with generalized peritonitis was made, and the patient was operated on promptly. At operation, approximately 8 qt. of a murky fluid was present in the peritoneal cavity. A perforated duodenal ulcer was found and was closed. Without warning, cardiac arrest occurred. The chest was entered, and cardiac massage was started. A levarterenol infusion (4 cc. levarterenol in 1,000 cc. glucose in saline solution) was given. A little difficulty was encountered in giving the intravenous injection because of the sudden drop in blood pressure. Infiltration of the levarterenol occurred, and the infusion was stopped. An area of ischemia about 12 cm. by 7 cm. was noted in the left antecubital fossa. Two cubic centimeters of hyaluronidase solution, 15 turbidity-reducing units (T. R. U.) per cubic centimeter, was infiltrated subcutaneously in the ischemic area. Within 15 minutes the ischemic area was at least twice the original size, and within two hours it was three times the size. Although the heart responded to cardiac massage initially, it again stopped three hours later. Cardiac massage was again instituted, and again the heart was revived. The patient died eight hours later. At the patient's death the ischemic area was three times the size it had been initially.

Case 2.—A 50-year-old man was admitted to the hospital on May 5, 1957, with a history that for the past three hours he had had severe constricting pain in the chest and left arm, associated with marked pallor and cold perspiration. He had had a severe coronary thrombosis a year and a half before. An electrocardiogram was consistent with a severe anterior wall infarction. He was given heparin sodium and bishydroxycoumarin (Dicumarol), with the amount rapidly increased until the required concentration was reached. Late in the day a few ventricular extrasystoles were noted and administration of quinidine was started. The next day

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the patient developed a few rales at both bases, and 2 cc. of mercaptomerin (Thiomerin) sodium was given. The same day, his blood pressure, which had been 120/80 mm. Hg, fell to 86/70 mm. Hg, so 2 cc. of mephentermine (Wyamine) sulfate (15 mg. per cubic centimeter) was given intramuscularly every hour.

The patient remained in critical condition. The next day he again developed precordial pain and a cold sweat, and the blood pressure was 60/40 mm. Hg and the pulse rate 30 per minute. A complete heart block had developed. A levarterenol infusion (4 cc. in 1,000 cc. glucose in water) was started, at 40 drops per minute. His blood pressure had risen slightly to 80/50 mm. Hg. On May 8, he was slightly better, when at 8:30 p. m. he suddenly complained that he did not have enough air and gave a loud outcry. The pulse was absent. Immediately artificial respiration was given, the levarterenol infusion was allowed to run in at a rapid rate, and atropine sulfate, 1/150 grain (0.00043 Gm.), was given into the infusion tubing. The patient's pulse and blood pressure responded in about five minutes. Ephedrine in oil, 1 cc., was given on the premise that this was a Stokes-Adams type of attack. The next day and the following day, the patient was much better, with the blood pressure remaining at 100/60 mm. Hg and the pulse about 65-70 per minute. The levarterenol infusion was continued at 30 drops per minute.

On May 10, I was called because of an infiltration due to the levarterenol solution. Actually there were two areas of infiltration, with a marked ischemic area in the left antecubital fossa measuring 13 by 8 cm., which had occurred six hours before, and a recent infiltration at the left wrist, which had occurred 15 minutes before. Each area was markedly blanched and cold and felt numb to the patient.

A solution of piperoxan (5 mg. in 2.5 cc.) was added to 17.5 cc. of sterile saline solution, and each area was infiltrated subcutaneously. The needle pricks were about 1 cm. apart, and about 0.25 to 0.5 cc. of the solution was injected in one place. Within 30 to 50 seconds each little injected area developed a pink color and the patient stated that the numbness was gone. The areas were inspected the next day and had a delicate pink coloration without evidence of ischemia. Because it was not known whether the solution of piperoxan would cause a drop in blood pressure, another infusion of levarterenol was started in the opposite antecubital fossa. However, this was discontinued when the blood pressure remained the same. The patient made an uneventful recovery and was discharged on June 11, 1957. The skin areas involved in the infiltration were entirely normal.

Case 3.—A 49-year-old male was admitted to the hospital on May 31, 1957, with a history that for the preceding three-month period he had had occasional precordial pain. On the day of admission the pain had been severe and continuous. He had a history of a previous attack of coronary thrombosis one year before, diabetes mellitus for 17 years, and blindness due to chronic glaucoma for one year.

On admission, the patient was pale and anxious, his pulse was thready, but his blood pressure was 115/80 mm. Hg. His electrocardiogram showed a depressed ST, and depressed ST wave in leads V_5, V_6, and CF_4. There was a deep QS wave in leads 2 and 3. He was given heparin and bishydroxycoumarin, but complained of almost continuous chest pain in spite of adequate doses of opiates.

On June 2 he complained of a sudden severe onset of chest pain, his blood pressure suddenly dropped to nothing, and the pulse became imperceptible. An infusion of levarterenol (8 cc. in 500 cc. glucose in water) was finally started in a leg vein after several attempts to find a suitable arm vein proved fruitless. The patient thrashed around in bed, and the levarterenol infusion infiltrated in an area measuring 15 cm. by 10 cm. This area became markedly blanched.

A solution of piperoxan was made up, with 10 mg. of piperoxan being used in 20 cc. of solution. The effect was exactly the same as that noted in case 2. Although the patient died three hours later from spreading of the initial infarction or sustaining of a fresh infarction, the ischemic area had remained pink.

Case 4.—A 42-year-old man was admitted on June 20, 1957, with a history of sudden onset of severe chest pain, dyspnea, and dizziness. He recalled two similar attacks, one year and six months previously. During those episodes, he had been hospitalized. He was a heavy drinker. Physical examination revealed a desperately ill patient. The pulse rate could not be counted. The heart rate was 180 beats per minute, with apparently regular rhythm. There were bilateral expiratory wheezes. The liver was enlarged four fingers below the costal arch, and there was slight edema of both legs. The blood pressure was 96/54 mm. Hg. The admission diagnosis was coronary thrombosis and possible cirrhosis of the liver. The electrocardiogram revealed ventricular tachycardia with a rate of 196 beats per minute. The patient had been given digitalis at the outset, which was stopped as soon as the electrocardiogram was read and quinidine substituted. The next day, the arrhythmia continued but the patient felt better.

That evening, the patient developed chest pain, associated with profuse perspiration, and developed shock. The blood pressure had dropped. Levarterenol, 4 cc. in 1,000 cc. glucose in water, was given at the rate of 30 drops per minute. The next day, June 22, the patient still had ventricular tachycardia, so that quinidine was given intramuscularly. The blood pressure was now 90/50 mm. Hg, and the levarterenol infusion was continued. On June 23, the tachycardia had stopped, and the patient suddenly uttered a cry and became temporarily unconscious. The heart rate was 32 beats per minute. The electrocardiogram showed complete heart block, idioventricular rhythm, and T wave inversions suggestive of coronary occlusion. Administration of levarterenol was continued. The patient's pulse was not of good quality.

That morning it was noted that the patient had a blanched area in the region of the needle puncture. The levarterenol solution was removed, and alcohol wet dressings were applied. About six hours later, when I inspected the area, it was noted that there was a 14 cm.-by-9 cm. area of induration which was blanched and cold and clearly demarcated from the rest of the skin. Although the solution had not actually infiltrated, it had extravasated through the needle puncture into the surrounding skin.

A solution of piperoxan in saline solution made up exactly as noted in case 2 was infiltrated subcutaneously throughout the ischemic area. An immediate pink coloration to the skin was noted, and the area became warm. Thirty cubic centimeters of the prepared solution was used. After the infiltration with piperoxan, it was noted that no drop in blood pressure had resulted. The area was inspected daily and appeared entirely normal.

The patient has been improving satisfactorily. At the time this paper was written the electrocardiogram showed regular sinus rhythm with first degree heart block; the blood pressure was 100/60 mm. Hg, and the pulse rate was 76 per minute.

Prevention and Reversal of Ischemia

In the latest literature on levarterenol, the manufacturer [3] lists the following precautions: 1. Do not leave patient unattended. 2. Antecubital vein of arm is preferred for infusion site. 3. Avoid hand veins. In elderly patients or in those with peripheral occlusive vascular disease avoid leg veins whenever possible. 4. Avoid leakage about needle. Extravasation may cause local ischemia and sloughing.

In spite of all necessary care and observation, extravasation of the solution may still occur, even though the needle is firmly in the vein and has not been dislodged by the patient.[4]

Shapiro and Perlow [4r] reported six cases of skin necrosis after intravenous administration of levarterenol. They state that the number of instances of severe local ischemia and transient phlebitis not associated with skin necrosis is not known but is undoubtedly much more frequent than actual necrosis. According to them, local infiltration and stagnation of the levarterenol in the vein may result in skin necrosis. In the latter instance, diffusion of the solution through the wall of the vein would offer an explanation for involvement of the tissue along the course of the vein.

Obviously some method of prevention of the ischemia and its reversal if already present is mandatory, if this remarkable drug is to remain in use. Shapiro and Perlow [4r] did some experimental work in dogs to answer some of these questions. Their work indicates that perfusion of the levarterenol solution through an undamaged vein wall is conceivable under conditions of sluggish circulation and stagnation of the blood within the veins. These conditions are found in the shock-like states which are precisely the emergencies for which levarterenol is used. An acute spasm of the vein, which so commonly occurs after the first influx of the levarterenol solution, may intensify the stagnation of blood. An injection of a solution without levarterenol will easily overcome such an obstruction. Therefore, Shapiro and Perlow recommended that in clinical use a solution without levarterenol should be used until a satisfactory flow has been reached, after which transfer to the pressor solution can be made. Further, if the clinician is unaware of the possibility of an acute venospasm, he may manipulate the needle which may increase the likelihood of perivascular infiltration of the pressor solution.

Shapiro and Perlow further recommend the insertion of a cannula or fine polyethylene tube high into the vein where the flow is more rapid than in the peripheral vessel and where the solution is quickly diluted by the large volume of blood. In addition, they make the point that the extremity should be elevated to aid in the venous return which would also prevent ischemia of the skin due to stasis of the solution in the vein. They further state that if the levarterenol solution is required only intermittently, it is advisable to flush out the vein with saline solution by means of a three-way stopcock in order to prevent stagnation of the pressor solution in the vein.

The points made by Shapiro and Perlow are interesting and useful but not widely applicable because of the training and the additional equipment necessary. Furthermore, it seems that extravasation of the levarterenol solution does not usually occur at the start of the infusion, but only after it has been running for several days. Thus other factors besides the initial acute venous spasm must be involved.

Hardie and Hunter [5] state that arteriosclerosis obliterans, thromboangiitis obliterans, and Raynaud's disease preclude the use of levarterenol infusions. They state that when long-term administration is necessary, the drug should be given above the antecubital or popliteal fossa in a vein of adequate diameter and blood flow. A polyethylene catheter threaded centrally through a large intravenous needle increases the amount of blood flow, in their view. They state that the nourishment of the vein wall should be maintained by administration of oxygenated whole blood with the pressor agent or intermittently by a "Y" connection. Also they state that vasoconstriction can be relaxed by stopping the administration of the drug and giving oxygenated whole blood and by injecting hyaluronidase and 1 to 2% procaine.

I feel, on the basis of case 1, that hyaluronidase may cause the ischemia to spread before the vasodilator becomes effective. Hardie and Hunter [5] recommend that heat not be used, because it increases the metabolic demands of the ischemic tissue. Years ago, I [6] showed in an experimental study that procaine will partially antagonize the vasoconstrictor effects of epinephrine, but it is doubtful if it can reverse the effects of levarterenol.

One need not go into great detail about the remarkable utility of levarterenol. It may be summed up in the quotation: "Levarterenol (Levophed) has proved to be the potent and effective vasopressor for the treatment of hypotension and shock following acute myocardial infarction. In the great majority of instances the blood pressure rises promptly after the institution of this therapy." [1a] Jamison and co-workers [7] believe that the beneficial effects of levarterenol are due to an increase in coronary blood flow, which is much greater proportionately than the rise in blood pressure. They claim that the oxygen supply of the heart muscle is increased to a greater extent than the oxygen utilization.

Sampson and Griffith [1c] state that levarterenol administered by intravenous drip is the most effective therapy now available in combating severe hypotension and is useful in overcoming shock due to acute myocardial infarction, cerebral arterial occlusion, pulmonary infarction or embolism, or shock associated with surgical, postsurgical, or traumatic complications. In a footnote to their article, the authors made the significant observation that when used alone levarterenol often results in thrombosis and necrosis of the vein employed, at or near the site of injection, especially so if the drug escapes into the surrounding tissues. They found, however, if 10 mg. of heparin is added to each 500 cc. of 5% glucose solution to which 8, 12, or even 16 mg. of levarterenol has been added, it will prevent thrombosis or necrosis of the veins. They state that even if a small amount of the solution should escape into the tissue the resulting inflammatory reaction does not progress to necrosis. If these findings can be duplicated, then the problem of administration of levarterenol is indeed solved. However, many of the patients given levarterenol have been given heparin and bishydroxycoumarin, and extravasation of a solution of levarterenol still caused ischemia and subsequent necrosis in some instances. Perhaps the concentration of heparin actually given in the levarterenol solution is greater than would be the concentration of heparin in the ischemic area when heparin is given intramuscularly. Nevertheless the method of administration of Sampson and Griffith is certainly worth a trial.

Treatment of Ischemic Area

The methods of treatment used for the ischemic area after levarterenol infiltration or extravasation have until recently proved largely unsuccessful. Injections of hyaluronidase and procaine[5] in the ischemic area did not prevent necrosis. Nourishment of the vein wall by transfusions of oxygenated whole blood has not changed the picture.[5] Recently two articles have appeared describing a treatment that has proved successful.

McGinn and co-workers[2a] used infiltration of phentolamine (Regitine) hydrochloride and hyaluronidase and Zucker[2b] used phentolamine alone into the ischemic area caused by levarterenol infiltration. Phentolamine is a physiological antagonist to levarterenol and is used in the diagnosis of pheochromocytoma, a tumor of the adrenal medulla, which produces levarterenol. Both of these articles describe the use of 5 mg. of phentolamine in 20 cc. of water, in one case with a solution of hyaluronidase and in the other without, as an injection into the ischemic area. Based on the results of my first case in this report (case 1), I should be hesitant to use hyaluronidase, since it will cause not only a diffusion of phentolamine but a widespread diffusion of the levarterenol as well. In any event, multiple infiltrations of a solution of phentolamine alone work just as well. According to the two articles, injections of phentolamine result in a "pinking out" of the ischemic area in from five to seven minutes.

At the time of my first treated case (case 2), phentolamine was not available to us at the hospital. We did have piperoxan (Benodaine) hydrochloride, and since this drug is also a physiological antagonist to levarterenol,[8] we used this in the dosage of 5 mg. in 20 cc. of sterile saline solution by multiple subcutaneous infiltration. A pink coloration developed in the ischemic area almost at once (30 to 50 seconds), and the area recovered completely in each case. Because of the massive dose of levarterenol used in case 3, 10 mg. of piperoxan in 20 cc. of solution was used as the infiltrating agent. Whether 5 mg. in 20 cc. would have been enough is not known.

In case 2, we were afraid to use the piperoxan solution to infiltrate the ischemic area before starting another infusion of levarterenol in the opposite arm. This precaution proved not to be necessary in this or in the other cases, because piperoxan has no effect on normally mediated blood pressure but has an effect only on blood pressure elevation associated with levarterenol secretion, as in pheochromocytoma.

Summary

Three patients with marked ischemia of the skin as the result of infiltration or extravasation of a solution of levarterenol (Levophed) bitartrate were treated with infiltration of a solution of piperoxan (Benodaine) hydrochloride. A satisfactory reversal of the ischemia resulted in each of the cases in which it was tried.

Dr. Emanuel Schwartz, Attending Physician at the Swedish Hospital, Brooklyn, N. Y., gave permission to report case 4, in which treatment was under his direction.

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ROUTINE MEASUREMENT OF RESPIRATORY RATE

AN EXPENSIVE TRIBUTE TO TRADITION

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The routine repeated measurement of the respiratory rate is of clinical value in less than 5% of patients in a hospital, and furthermore physicians themselves rarely show an interest in such measurements. As a result of such indifference, nurses have been increasingly casual in their measurement of respiratory rates, and, in many cases, though a figure is recorded, no actual measurement was made. In one carefully controlled experiment measurements of respiratory rate were carried out in 58 patients within minutes of the routine ward measurements. The ward records showed 57 of these patients as having a rate between 18 and 22 per minute; 40 having a rate of exactly 20. The real range was from 11 to 33 per minute, only five patients showing a rate of 20. If recording the respiratory rate is important, the character of the breathing is of equal importance. Nursing personnel should recognize abnormal breathing patterns and bring these abnormal findings to the attention of the physician. It is suggested that routine recording of respiratory rates be limited to those cases or on those hospital wards where the physician specifically orders such measurements. This not only would improve the accuracy of the measurements and clinical records but also would save millions of hours of personnel time each year.

The measurement of the respiratory rate in hospital patients has been a routine procedure for many years. At the turn of the century a large number of hospital patients were admitted for acute infectious diseases, such as typhoid, malaria, and bacterial pneumonias. Since precise diagnostic procedures were not available and since therapy for most of these diseases was nonspecific and "expectant," serial observations of the "vital signs" were of great clinical importance. Under such conditions, frequent measurements of the respiratory rate served as a valuable prognostic aid.

As medical knowledge has increased, however, with improved methods of diagnosis and treatment, the routine repeated measurement of the respiratory rate is of clinical value in only a small percentage of hospital cases. Nevertheless, the tradition has been firmly established, and hospital patients continue to have their respiratory rate recorded, as a matter of routine, along with the body temperature and pulse rate. Since this measurement has not been of particular inconvenience to physicians, the tradition has been permitted to continue unchallenged even though the physicians themselves rarely show interest in such measurements. As a result of this indifference, the nurses have been increasingly casual in their measurement of respiratory rates, so that, in many cases, a routine figure is recorded, no actual measurement having been made.

It is the purpose of this study (1) to reexamine the clinical value of the routine measurement of the respiratory rate, (2) to assess the accuracy of such measurements in representative hospitals, and (3) to point out the approximate annual cost of personnel time used in this routine procedure in our hospitals.

Respiratory rates can be abnormal in only two ways—an increased respiratory rate (tachypnea) or a decreased respiratory rate (bradypnea). The chief conditions in which the respiratory rate increases are pneumonia, pleurisy, other painful conditions of the chest wall, any condition which obstructs the air passages, fever, anemia, congestive heart failure, metabolic abnormalities, neurogenic and psychogenic defects, limitation of the depth of inspiration as in peritonitis or increased intra-abdominal tension, and conditions which increase the carbon dioxide tension of the blood.[1] In none of these is tachypnea per se either diagnostic or of great help in management, although observation of the character of the respiration is sometimes helpful. It should be noted that "an increased [*respiratory*] rate is often observed in the normal person because of embarrassment or the emotional distress occasioned by the examination." [1A]

A decreased respiratory rate is seen in such con tions as lowered metabolism, drug narcosis, sho and head trauma in which there is a marked incre in intracranial pressure.[1A] In the latter three conditi the respiratory rate may be quite important, but equal importance is the character of the breathing. is particularly important that nursing personi recognize at an early stage such abnormal breathi patterns as dyspnea, stridulous breathing, the de sighs of emotional tension, Kussmaul's respiratio and respiration of either the Cheyne-Stokes or B type and that such abnormal breathing be broug to the attention of the physician.

Clinical Usefulness of Routine Measurements

In order to evaluate the clinical usefulness routine measurements of respiratory rate, two a proaches were used (table 1). A survey of 200 r selected consecutive clinical records at the Vetera Administration Hospital, Nashville, Tenn., was carri out in which each record was carefully reviewed a

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From the Investigative Medicine Service, Veterans Administration Hospital, Wood, Wis., and the Department of Medicine, Marquette University School of Medicine, Milwaukee.

day by day condition of the patient evaluated as whether measurements of the breathing rate would of any value. This evaluation was conservative, luding, for example, a blanket assumption that piratory rate measurements would be of value for eral days after each operative procedure, however jor. Even with this conservative approach, the vey revealed that in a total of 5,006 patient days, re were only 238 days (4.7%) in which measurents of the respiratory rate were of any clinical value. imilar survey of 100 consecutive unselected clinical ords at the Veterans Administration Hospital, ood, Wis., suggested that respiratory rate measurents were needed in only 204 (3.3%) of 6,169 total tient days.

The second approach was carried out by means of ect questioning of the 40 physicians directly reonsible for the care of 1,067 patients in the Veterans dministration Hospital, Wood, Wis. These patients re distributed as follows: medical, 378; surgical, 2; tubercular, 160; and neuropsychiatric, 207. Each ysician was asked how many of the patients directly der his care would need to have measurements of spiratory rate taken in the event that routine measureents were eliminated. Each doctor was urged to inude any patient in whose respiratory rate he was terested for any reason whatsoever. Even with this rging, there were only 49, or 4.6%, of a total of 1,067 ospital patients for whom the patient's physician onsidered repeated respiratory rate measurements of ny clinical importance (table 1).

These studies, although carried out independently, how remarkable agreement and strongly suggest that, a general medical and surgical hospital, measureents of respiratory rate are of clinical usefulness in ss than 5% of the patient days.

BLE 1.—*Evaluation of Proportion of Total Patient Days in Which Serial Measurements of Respiratory Rate Are of Clinical Importance*

Type of Study	Hospital Where Study Was Conducted	No. of Patients	Total No. of Patient Days	Patient Days in Which Respiratory Rate Measurements Were Clinically Useful: No. of Days	Patient Days in Which Respiratory Rate Measurements Were Clinically Useful: % of Total
ew of ospital harts	Veterans Hospital, Nashville, Tenn.	200	5,006	238	4.7
iew of ospital harts	Veterans Hospital, Wood, Wis.	100	6,169	204	3.3
ll of 40 hysicians esponsible or patient are	Veterans Hospital, Wood, Wis.	1,067	1,067	49	4.6

Accuracy of Routine Measurements

The lack of medical interest in respiratory rates has esulted in apathy on the part of nurses toward this easurement. In many hospitals "respirations" are easured in a perfunctory manner and are likely to e highly inaccurate. These inaccuracies were reeatedly demonstrated by comparison of measurements of respiratory rates taken in studies on patients n a cardiopulmonary laboratory with those measurements routinely recorded in the clinical record of the same patient on the same day (fig. 1). The routine measurements of rates recorded on the ward records were between 18 and 22 per minute in 49 of the 51 patients studied, and 34 of the rates were charted at exactly 20 per minute. In contrast, the respiratory rates carefully measured in the cardiopulmonary laboratory on the same patients on the same day ranged from 10 to 35 per minute. Figure 1 illustrates the absence of correlation between these sets of measurements.

In order to duplicate the conditions as nearly as possible, careful measurements of respiratory rates were carried out at intervals during one day on all patients on one acute medical and one acute surgical ward. Our measurements were made either a few minutes before or a few minutes after the routine temperature, pulse, and respiration measurements (fig. 2). In this entirely separate group of patients, the routinely recorded ward respiratory rates were between 18 and 22 per minute in 57 of 58 patients, 40 of these being recorded as exactly 20 per minute. In this group, our carefully measured rates ranged from 11 to 33 per minute with no correlation between the two sets of measurements. It should be further noted that two patients were found by us to exhibit typical

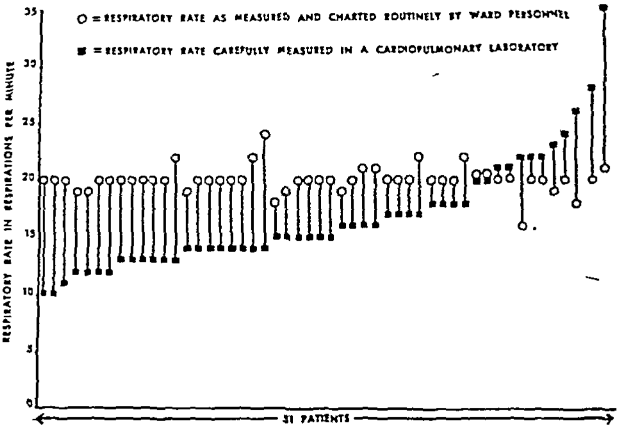

Fig. 1.—Comparison of respiratory rates measured in cardiopulmonary laboratory with routinely recorded ward "respirations" for same patients on same day.

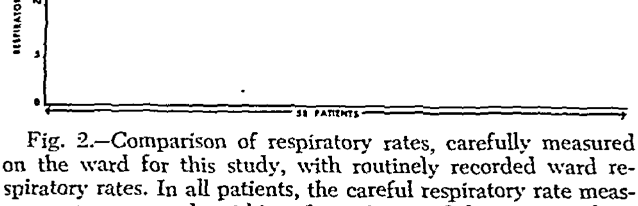

Fig. 2.—Comparison of respiratory rates, carefully measured on the ward for this study, with routinely recorded ward respiratory rates. In all patients, the careful respiratory rate measurements were made within a few minutes of the routine taking of "temperature, pulse, and respiration" by ward personnel.

Cheyne-Stokes respiration. No notation of this fact was found in either patient's clinical record, although the respirations were charted faithfully at 20 per minute on both patients.

The data obtained in these two studies strongly suggest that the routine respiratory rates recorded on the wards are much more likely to be 20±2 per minute than to represent the correct respiratory rate. In order to test this thesis, the clinical records of 148 patients at Veterans Administration Hospital, Nashville, Tenn., and 100 patients at Veterans Administration Hospital, Wood, Wis., were checked for the total number of respiratory rates measured in the patient and for the number of these rates which fell between 18 and 22 per minute (table 2). Of the 6,953 recorded respiratory rates in 148 patients at Thayer Veterans Administration Hospital in Nashville, 6,532, or 94%, ranged between 18 and 22 per minute. Of 6,757 respiratory rate measurements in 100 patients at Veterans Administration Hospital, Wood, Wis., 6,363, or 94%, were within the 18 to 22 range. The fact that only 6% of 13,000 respiratory rates as recorded were outside of the 18 to 22 range is further evidence that the recorded measurements are unreliable, particularly since the normal range for males is more nearly 14 to 18 per minute than 18 to 22.[2]

TABLE 2.—*Evaluation of Accuracy of Routine Respiratory Rate Measurements*

Type of Study	Hospital Where Study Was Conducted	No. of Patients	Total No. of Respiratory Rates Measured	No. of Recorded Respiratory Rates Between 18 and 22 per Min.	
				No. of Measurements	% of Total
Review of hospital charts	Veterans Hospital Nashville, Tenn.	148	6,953	6,532	94
Review of hospital charts	Veterans Hospital, Wood, Wis.	100	6,757	6,363	94

Yearly Cost of Personnel Time Used in Unnecessary Measurements

The average daily patient population (excluding neuropsychiatric patients) in United States hospitals is in excess of 650,000. If 5% of these (32,500) are assumed to need respiratory rate measurements, over 600,000 patients would appear to be receiving unnecessary routine respiratory rate measurements each day. If we make the conservative assumptions (1) that the 600,000 patients will receive an average of only one measurement a day and (2) that this measurement, together with the charting, will require only one minute's time, it still follows that 600,000 minutes of personnel time is devoted each day to this needless measurement. These daily 600,000 minutes represent 3,650,000 hours per year of wasted time of nurses and nursing assistants, both of whom are in extremely short supply in our hospitals. If a further conservative assumption is made that the average salary of such personnel is $1.50 per hour, the monetary expression of this annual wasted time is over $5,500,000.

Comment

Our data have indicated that measurement of respiratory rate serves a useful purpose in less than 5% of patient days and that the routinely recorded respiratory rates are highly inaccurate. Both of these statements have long been recognized by many physicians, but no systematic effort has previously been made to analyze this problem.

The repeated appearance in patients' hospital records of such inaccurate and unreliable data can never be defended as "good medical practice." The complete omission of such data would appear to represent better medical practice than does perpetuation of these erroneous records. It should be emphasized that respiratory rate measurements may be important in certain types of patients. In these as well as other patients the observation of the character of the breathing is at least as important as measurement of the rate.

It is proposed, therefore, that measurement of respiratory rate be continued in those cases or on those wards where the physician specifically orders that such measurements be made but that measurement of respiratory rate be eliminated as a "pan-hospital" routine. It is further proposed that the character of the patient's breathing be observed and recorded along with an accurate measurement of respiratory rate in those patients who need such measurements.

Summary and Conclusions

The data herein presented demonstrate that each year over 3,500,000 hours of personnel time (representing over $5,500,000) are devoted to an unreliable largely useless routine which has been continued in hospital procedure wholly because of tradition. The thesis espoused in this report is that the elimination of these routine measurements would in itself improve medical practice and patient care, by eliminating erroneous information from patients' hospital records and by freeing nursing personnel for more important duties. In place of this routine, the physician would specify those patients or particular wards in which he considered close observation of respiration necessary. The nurse, in turn, would observe the character as well as the rate of the "respirations" in such patients. Such a proposal should result in improved patient care and more accurate medical records and at the same time save over 3,500,000 hours of personnel time each year in United States hospitals.

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CLINICAL NOTES

TERMINAL BLOOD ALCOHOL CONCENTRATIONS IN NINETY-FOUR FATAL CASES OF ACUTE ALCOHOLISM

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and
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The observations reported herein were made for the urpose of obtaining additional data on (*a*) the erminal blood alcohol levels of persons dying from ncomplicated acute alcoholic poisoning and (*b*) the nterval of time between discovery of the patient in a omatose state (or time of last known alcohol ingeson) and death. From these combined data, an estimate, based on the rate of alcohol elimination, can hen be made as to the probable magnitude of the ntemortem blood alcohol concentrations. Such nowledge may influence the prognosis in cases of lcoholic intoxication and, from the medicolegal point f view, assist in more accurately establishing death s being due to acute alcoholic intoxication. Pertinent nformation and discussion on these matters is limited argely to publications of Jetter[1] and Jetter and McLean.[2]

During the period 1948-1955, we have had opporunity to study 94 cases in which the histories, medical xaminers' reports, gross and microscopic postmortem indings, and chemical analyses ruled out other ecognizable common causes of death except acute lcoholism. The majority of these victims were males between 25 and 50 years of age who were alcohol habitués and who had died a number of hours after appearance of coma or last known ingestion of alcohol. All the deaths occurred in Virginia. Blood for alcohol level determinations was drawn from the heart within eight hours after death. Alcohol concentrations were determined by a modification of the Nicloux method.[3] The interval between time of coma (or last alcohol ingestion) and death was obtained from the medical examiners' reports; understandably many of these figures represent, by and large, approximations, in view of which only the range of figures is given. The results are tabulated in the table.

Study of the table reveals, first, that in this group terminal blood alcohol values ranged from 180 to 600 mg. per 100 ml. of blood and, second, that the blood alcohol concentration at death was found to be inversely related to length of survival. One of us[4] found, from a study of nine human volunteers, that the blood alcohol level decreased at an hourly rate of 22±5 mg. per 100 ml. of blood; this is in keeping with the figures given by Harger and Hulpieu[5] and Jetter.[1] Hence, assuming that the blood alcohol concentration falls at a rate of approximately 20 mg. per 100 ml. of blood per hour, then, from the known duration of survival after coma and the terminal blood alcohol values, one can calculate the probable antemortem blood alcohol level at about the time the patient was first seen in coma (or known to have had his last drink). When this computation is made with the various time intervals and terminal blood alcohol values noted in our cases, calculated average antecedent values agree very well, i. e., about 500 mg. per 100 ml. of blood for those dying in 10 to 16 hours, to 600 mg. per 100 ml. for those dying within 1 to 2 hours. This does not mean necessarily that higher values may not have existed.

These findings are in keeping with observations and opinions reported by others.[6] Jetter,[1] for instance, cites one case in which the patient died about three hours after drinking two to three pints of whisky; the terminal blood value was 720 mg. of alcohol per 100 ml. of blood. In a second case, the patient died 18 hours after onset of coma; the postmortem blood alcohol concentration was 40 mg. per 100 ml. Hence it would appear that death need not (and probably seldom does) ensue at the height of the blood alcohol concentration but can follow hours later (due probably to irreversible and progressive central nervous system injury initiated at the time of the high level of alcohol). During this interval, considerable amounts of alcohol are metabolized and excreted, the blood alcohol concentration thus being lowered to that which is found on postmortem examination. These observations are substantiated by results obtained with animals,[7] in which it was noted that death almost never occurred at the peak blood alcohol level after oral alcohol administration with just fatal doses. In all probability, a similar situation exists with respect to other central nervous system depressants, notably the barbiturates.

Terminal Blood Alcohol Concentrations in Ninety-four Patients with Acute Alcoholism

Alcohol Values, Mg./100 Ml.			
Range	Median*	Patients, No.	Time Interval† to Death, Hr.
180-250	220±30	4	10-16
250-300	280±15	15	8-12
300-350	330±14	18	6-10
350-400	390±16	13	6-10
400-450	430±12	14	3-8
450-500	470±14	15	3-8
500-550	530±14	7	1-4
550-600	580±15	8	1-2

* Median for 94 patients = 400±100 mg. alcohol per 100 ml. of blood.

† Time interval between discovery of patient in comatose state (or time of last alcohol ingestion) and death.

From the departments of legal medicine and pharmacology, Medical College of Virginia and Office of the Chief Medical Examiner, State of Virginia.

Jetter[1] further states that in about 2,000 cases in which antemortem blood alcohol level estimations were done, he had never seen survival when the antemortem blood alcohol value was above 500 mg. per 100 ml. blood. In only three of his cases were postmortem blood alcohol values 500 mg. per 100 ml. or above. In over 4,000 examinations that we have made during the past eight years, we have never encountered a postmortem alcohol value in excess of 650 mg. per 100 ml. of blood.

Summary and Conclusions

Ninety-four patients with uncomplicated fatal acute alcoholism were found to have terminal blood alcohol concentrations ranging from 180 to 600 mg. per 100 ml. of blood. These values varied inversely with the length of time of survival after discovery of the patient in coma (or after the last drink); that is, the longer the period of survival, the lower the terminal blood alcohol value. Calculated antemortem concentrations at some previous time varied between 500 and 600 mg. of alcohol per 100 ml. of blood. From this, and in keeping with the findings of others, it appears that patients with levels of alcohol of about 500 mg. per 100 ml. of blood and above are foredoomed, in the absence of effective therapy, although at death the blood alcohol value may be only a fraction of this figure.

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A SIMPLE, INEXPENSIVE COLOSTOMY APPLIANCE

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A simple, inexpensive colostomy appliance can be made by using common 40-gauge clear plastic, from which the rear window of a convertible car is usually made. This material is soft and pliable and molds itself nicely to the abdominal contour. It is easily cut so that its central opening can be made quite large to allow its use shortly after the performance of the colostomy when the external portion of the intestine is still quite large because of the edema.

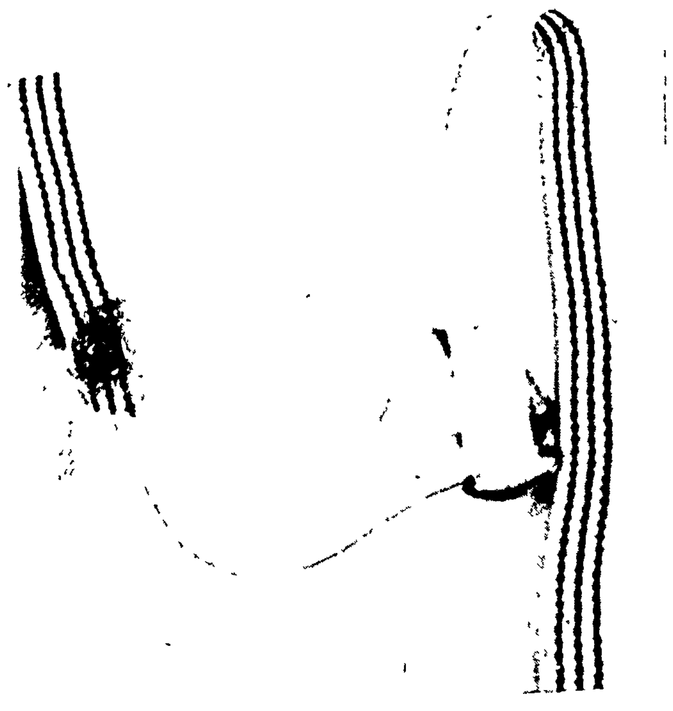

Fig. 1.—Disk of 40-gauge clear plastic, with Dot Snapper fastener at either end.

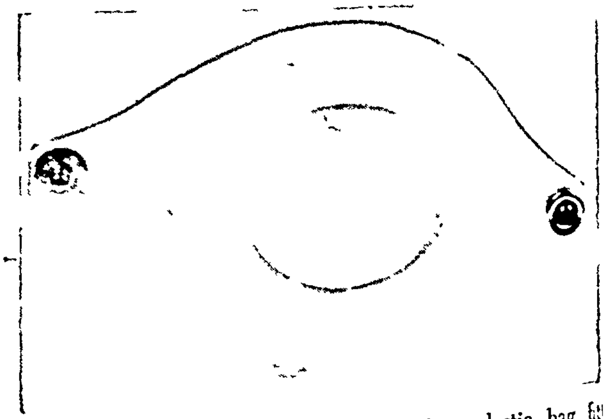

Fig. 2.—Colostomy appliance, showing plastic bag fitting through center opening of disk and webbed elastic strap fastened at each end.

The clear plastic is cut from a sheet in the design shown in figure 1. At either end is a Dot Snapper fastener. To one end the webbed, elastic strap is fastened and to the other end the Dot buckle. The usual plastic bag fits through the central opening and its ends turn over the circular portion of the plastic disk (fig. 2).

501 Broadway.

GRADUATE MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL REPORT AND DIRECTORY OF APPROVED INTERNSHIPS AND RESIDENCIES, AND RÉSUMÉ OF THE REQUIREMENTS OF EXAMINING BOARDS IN THE MEDICAL SPECIALTIES PREPARED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Arthur N. Springall, M.D., John Hinman, M.D., and Willard V. Thompson, M.D.

ANNUAL REPORT

The 31st Annual Report on Internships and Residencies consists of detailed information and statistical data on all intern and resident training programs approved by the Council. Approval is limited to programs in hospitals located in the continental United States, the Canal Zone, Hawaii, and Puerto Rico. The report is composed of statistical tables on internships and residencies with detailed explanations and interpretations; a statement regarding the National Intern Matching Program; a brief description of the Internship Review Committee and the various residency review committees and their activities; a brief paragraph on foreign medical graduates; a statement of policy regarding straight internships; and a résumé.

The Directory of Approved Internships and Residencies is published immediately following the report. The hospitals which offer approved intern training programs are listed according to geographical location. Information given consists of the hospital control, number of hospital beds, number of annual admissions, autopsy rate, length of internship, stipend, and number and types of internships offered. Hospitals are also listed according to types of internships offered. A list of internships in Canada approved by the Canadian Medical Association is included.

The residency section lists the hospitals approved for residency training according to specialties. In addition to the statistical data presented, the names of the chiefs of services are listed, and additional information is included similar to that given in the internship section. A subsequent listing by state and city indicates the specialties for which each hospital is approved.

The entire report is based on detailed information furnished by each hospital approved for intern and/or resident training. The statistical data in the tables represent the intern and resident situations as of Sept. 1, 1956. These figures, therefore, may be in some instances at variance with those presented in the Directory of Approved Internships and Residencies, as the latter refer to appointments beginning July 1, 1958.

The Council acknowledges with gratitude the cooperation and assistance of the medical staffs and the administrators of hospitals listed. The publication of this report was made possible by their furnishing the statistical data requested. The following organizations collaborated with the Council in approving residency programs:

Advisory Board for Medical Specialties
American Academy of General Practice
American Board of Anesthesiology
American Board of Dermatology
American Board of Internal Medicine
  Subspecialty Board on Allergy
  Subspecialty Board on Cardiovascular Disease
  Subspecialty Board on Gastroenterology
  Subspecialty Board on Pulmonary Diseases
American Board of Neurological Surgery
American Board of Obstetrics and Gynecology
American Board of Ophthalmology
American Board of Orthopedic Surgery
American Board of Otolaryngology
American Board of Pathology
American Board of Pediatrics
  Subspecialty Board on Allergy
American Board of Physical Medicine and Rehabilitation
American Board of Plastic Surgery
American Board of Preventive Medicine
American Board of Proctology
American Board of Psychiatry and Neurology
American Board of Radiology
American Board of Surgery
American Board of Urology
Board of Thoracic Surgery
American College of Physicians
American College of Surgeons

The Annual Report and the lists of approved internships and residencies are reprinted as the Directory of Approved Internships and Residencies. Copies of this reprint will be furnished upon request to the Council.

The Annual Report furnishes information on graduate medical education (internships and residencies) to those interested, including medical students, hospital administrators, medical educators, and other individuals and organizations. The primary purpose of the report is to provide necessary information to young physicians beginning their professional careers who desire to undertake further medical education and training.

INTERNSHIPS

In table 1 there are listed the number of hospitals offering approved internships and the number of internships offered for the past 10-year period. For the intern year beginning July 1, 1956, 852 hospitals offered a total of 11,895 intern positions. These figures represent a decrease of 15 (2%) in the number of hospitals and an increase of 279 (2%) in the number of positions over the preceding year. This number of internships available is the largest number ever offered.

Miss Mary A. McGovern and Mrs. Helen Neitzel were responsible for much of the detail work in the preparation of the lists of approved internships and residencies, and the staff of the Machine Records System was responsible for the IBM statistical tabulations.

Represented in these figures are the approved internships in hospitals in the continental United States and in its territories and possessions, including one hospital in the Canal Zone, four in Hawaii, and eight in Puerto Rico.

The disparity between the number of American medical school graduates and the number of internships available is increasing. In 1956, there were 6,845 graduates of approved American medical schools. Therefore, there were approximately 5,000 positions available during the year 1956-1957 which could not be filled by American graduates. An estimated 2,500 of this number were filled by graduates of foreign medical schools. During the past 10 years, the number of hospitals offering approved intern training programs has increased about 6%, while the number of internships offered has increased 31%. During the same period, the number of interns per hospital has increased from 11.3 to 13.9.

Table 1.—*Approved Hospitals and Internships, 1948-1957*

Year of Publication	No. of Hospitals	No. of Internships
1948	807	9,118
1949	807	9,124
1950	794	9,398
1951	828	10,044
1952	865	11,467
1953	856	11,006
1954	844	10,624
1955	850	11,048
1956	867	11,616
1957	852	11,895

Internships, by Type of Service

A breakdown of approved internships according to type of service is given in table 2. Rotating general and rotating with emphasis on a particular service are included in the category of rotating services. Straight internships include straight service assignments to medicine, surgery, pediatrics, pathology, and obstetrics-gynecology. Mixed internships include those where assignments are made to two or three of the four major services (medicine, surgery, obstetrics, and pediatrics).

Table 2.—*Number of Internships, by Type of Service, 1956-1957*

Type of Internship	No. of Approved Programs	No. of Internships: Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled
Rotating general	809	8,593	1,786	83
Other rotating	31	68	9	88
Totals	840	8,661	1,795	83
Mixed	42	157	16	91
Straight				
Internal medicine	80	556	68	89
Surgery	62	327	62	84
Pediatrics	46	140	46	77
Obstetrics-gynecology	4	10	3	77
Pathology	27	42	12	77
Totals	219	1,075	191	85
Grand totals	1,101*	9,893	2,002	83

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* Number of intern training programs in 852 approved hospitals.

For the intern year beginning July 1, 1956, 852 hospitals offered 1,101 approved intern training programs involving 11,895 intern positions. While the number of internships has increased slightly during the past year, the relative percentage of the three types of internship remains approximately the same. Table 3 represents these percentages for the types of internships for the past five years. Variation during this period has been slight.

On Sept. 1, 1956, 83% of the rotating internships were filled. Mixed internship occupancy increased from 84% in 1955 to 91% in 1956. There was also a slight increase in the occupancy of the straight internships from 83 to 85%. The over-all occupancy rate for internships on Sept. 1, 1956—83%—was the same as for 1955.

Table 3.—*Relative Percentage of Types of Internships, 1953-1957*

Type of Internship	1953	1954	1955	1956	1957
Rotating	90.0%	88.9%	88.8%	87.9%	[illegible]
Mixed	1.2	1.4	1.2	1.2	1.5
Straight	8.8	9.7	10.0	10.9	11.6
	100.0%	100.0%	100.0%	100.0%	100.0%

Internships, by Type of Hospital Control

The distribution of internships by type of hospital control is shown in table 4. Forty-two federal hospitals offered 643 positions, or 5.4% of the total number of internships. Intern positions offered by the 131 nonfederal governmental institutions totaled 3,800 (32%). The 670 nongovernmental hospitals accounted for 7,393 positions (62%). The nine proprietary hospitals offered 59 positions (less than 1%).

Table 4.—*Number of Internships, by Type of Hospital Control, 1956-1957*

Control	No. of Approved Hospitals	No. of Internships: Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled
Federal				
U. S. Army	9	211*	...	10
U. S. Navy	16	199	7	96
U. S. Public Health Service	7	79	1	99
Veterans Administration	7	58	42	58
Other federal	3	43	3	94
Totals	42	590	53	[illegible]
Governmental (nonfederal)				
State	31	886	106	89
County	39	913	90	91
City	48	1,350	166	87
City-county	13	237	50	83
Totals	131	3,386	414	89
Nongovernmental				
Church	312	2,400	743	77
Nonprofit corporations	358	3,468	782	82
Totals	670	5,868	1,525	79
Proprietary				
Partnership	1	4	4	50
Corporations unrestricted as to profit	8	45	6	88
Totals	9	49	10	83
Grand totals	852	9,893	2,002	83

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* Includes 60 positions assigned to the U. S. Air Force.

As in previous years, the highest occupancy rate occurred in the federal hospitals, with an average of 88% positions filled on Sept. 1, 1956; individual federal service figures varied from a low of 58% occupancy in the Veterans Administration hospitals to 100% occupancy in the Army hospitals. The Army figure of 211 positions filled includes 60 internships filled by interns assigned to the Air Force; no Air Force Hospitals conducted intern training programs during the year. Army hospitals being used for training Air Force interns. Occupancy rate for the nonfederal governmental hospitals was 89%, a decrease of 2% from last year's figure; county hospitals had the highest rate (91%) in this group. For the nongovernmental hospitals, the rate was 79%; and that for proprietary institutions was 83%. The over-all occupancy rate for all hospitals offering approved internships was 83%.

TABLE 5.—*Number of Internships, by Medical School Affiliation and Bed Capacity 1956-1957*

Classification	No. of Approved Hospitals	No. of Internships Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled
Nonaffiliated				
Less than 200 beds	137	620	177	78
200-299	252	1,729	500	78
300-499	188	1,911	452	81
500-over	59	1,101	148	88
Totals	636	5,361	1,277	81
Major teaching				
Less than 200 beds	10	48	21	70
200-299	20	200	50	80
300-499	52	922	195	83
500-over	65	2,668	229	92
Totals	147	3,838	495	89
Minor teaching				
Less than 200 beds	14	58	24	71
200-299	20	136	65	68
300-499	24	263	94	74
500-over	11	237	47	83
Totals	69	694	230	75
Grand totals	852	9,893	2,002	83

The federal hospitals averaged 14.0 interns on duty per hospital; the nonfederal governmental figure was 25.7; for nongovernmental hospitals, 8.8; and for proprietary hospitals, 5.5. The average number of interns on duty per hospital was 11.6, as compared with 11.1 in 1955.

In 1954, 9,066 positions were filled (82%); in 1955, 9,603 positions were filled (83%); and in 1956, 9,893 positions were filled (83%). Internships have increased numerically during the past three years, while the occupancy rate has remained stable.

Internships, by Medical School Affiliation and Bed Capacity

In table 5, hospitals are classified into three categories, based on the degree to which medical schools utilize these hospitals for undergraduate medical education. A "major teaching hospital" is one that is considered by the medical school as being a major unit in its undergraduate clinical clerkship program. The term "minor teaching hospital" refers to a hospital

TABLE 6.—*Number of Internships, by Census Region and State, 1956-1957*

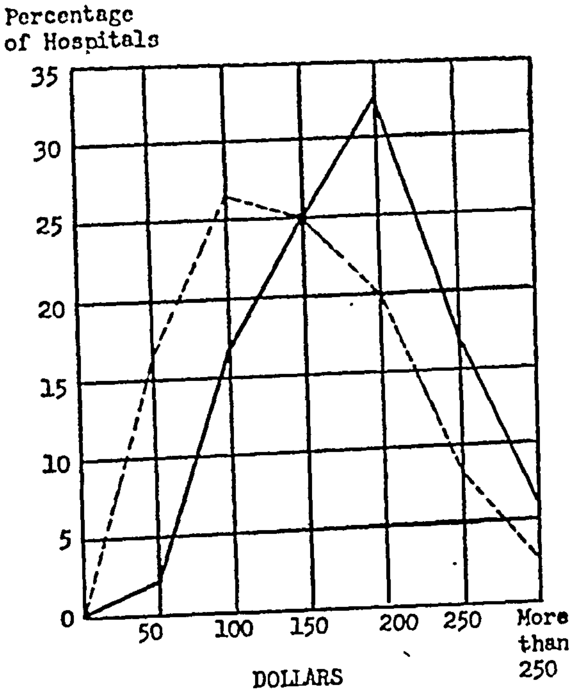
Census Region and State	No. of Approved Hospitals	No. of Internships Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled
New England				
Connecticut	22	183	24	88
Maine	4	20	7	74
Massachusetts	36	349	47	88
New Hampshire	1	14	..	100
Rhode Island	7	64	3	96
Vermont	2	17	3	85
Totals	72	647	84	89
Middle Atlantic				
New Jersey	41	383	43	90
New York	107	1,689	150	92
Pennsylvania	78	661	269	73
Totals	226	2,733	462	86
East North Central				
Illinois	53	696	89	89
Indiana	17	124	66	65
Michigan	38	497	91	85
Ohio	51	612	93	87
Wisconsin	22	181	39	82
Totals	181	2,110	378	85
West North Central				
Iowa	8	50	23	68
Kansas	6	71	8	90
Minnesota	15	192	34	85
Missouri	24	322	99	76
Nebraska	9	46	26	64
North Dakota	4	11	11	50
South Dakota	3	18	5	78
Totals	69	710	206	78
South Atlantic				
Delaware	3	30	4	88
District of Columbia	10	187	21	90
Florida	14	156	19	89
Georgia	14	144	39	78
Maryland	20	246	57	81
North Carolina	13	153	42	78
South Carolina	7	74	30	71
Virginia	18	161	45	78
West Virginia	8	56	16	78
Totals	107	1,207	273	82
East South Central				
Alabama	9	79	42	65
Kentucky	9	70	38	65
Mississippi	3	21	13	62
Tennessee	15	204	51	80
Totals	36	374	144	72
West South Central				
Arkansas	3	44	11	80
Louisiana	10	228	26	90
Oklahoma	7	55	27	67
Texas	26	324	105	76
Totals	46	651	169	79
Mountain				
Arizona	5	46	12	76
Colorado	12	130	19	87
Montana	3	2	8	20
New Mexico	1	6	...	100
Utah	7	57	22	72
Totals	28	241	61	80
Pacific				
California	52	766	188	80
Oregon	7	90	6	94
Washington	15	163	26	86
Totals	74	1,019	220	84
Territories and Possessions				
Canal Zone	1	16	...	100
Hawaii	4	70	...	100
Puerto Rico	8	95	5	95
Totals	13	181	5	97
Grand totals	852	9,893	2,002	83

used to a limited extent for undergraduate training. "Nonaffiliated hospitals" are those which are not designated by a medical school as participating in such a program. This classification is used in this report and in the list of approved internships.

Major teaching hospitals (147) constituted 17% of those approved for internships, offered 4,335 internships, and showed an occupancy rate of 89% on Sept. 1, 1956. The 69 minor teaching hospitals were 8% of the total number of hospitals and were 75% filled on the same date. Nonaffiliated hospitals (636), 75% of the approved hospitals, filled 81% of their positions on Sept. 1, 1956.

The major teaching hospital group had the highest occupancy rate (89%), which was the same as the rate for 1955. Nonaffiliated hospitals increased the rate from 79% in 1955 to 81% in 1956.

As was pointed out in the Annual Report for 1955, there was evidenced a definite trend for the larger hospitals to have a higher percentage of internships filled. This observation is again borne out by the figures shown in table 5. For hospitals of 200 beds or less in all three groups, the combined occupancy rate was 77%; for hospitals having 200 to 299 beds, the rate was the same, 77%; hospitals having 300 to 499 beds indicated that 81% of their positions were filled; and hospitals having more than 500 beds showed a 90% occupancy rate.



Monthly internship stipends, with federal hospitals excluded. Solid line indicates nonaffiliated hospitals (606), dashed line affiliated hospitals (204). Abscissa gives upper level of stipend range.

Internships, by Census Region and State

Table 6 shows a breakdown by states and regions of the internships on Sept. 1, 1956, with numbers of positions filled and vacant, and the percentage of internships filled quoted in each instance.

Hospitals in United States territories and possessio again showed the highest percentage of filled positio —97%. The New England region had the highest occ pancy rate for the continental United States, 89 which was an increase of 3% over last year's figu The rate of 72% in the East South Central region w the lowest recorded this year. Individual states havi 90% occupancy or higher were New Hampshire (100%), Rhode Island, New Jersey, New York, Kansas, District of Columbia, Louisiana, New Mexico (100%), Oregon, Canal Zone (100%), Hawaii (100%), and Puerto Rico. Lowest rates were those for Montana and North Dakota.

New Mexico offered an approved internship for the first time. Those states which do not have approved intern training programs at the present time are Idaho Nevada, and Wyoming.

Internship Stipends

Stipends for interns have increased appreciabl during the past several years. The average cas stipend paid the intern in affiliated hospitals dur ing 1954 was $87; in 1955 this figure increased t $121; the stipend for 1956 increased still furthe to reach a figure of $141, an increase of $20 ove 1955. The nonaffiliated hospitals showed a simila increase. Figures for the past three years for non affiliated hospitals are 1954, $136; 1955, $169, an 1956, $177.

In the figure, the graph portrays the internsh stipends for 1956, comparison being made b tween the affiliated and the nonaffiliated instit tions. Federal hospitals are excluded from this grap The curve shown for each type of hospital is r unlike that for the previous year. Only one hos tal reported "No stipend paid"—an affiliated hos tal.

Seventy-three per cent of the affiliated hospi furnished full maintenance, 18% furnished par maintenance, and 9% furnished no maintenan Eighty-five per cent of the nonaffiliated hospi offered full maintenance in addition to the stipe 12% gave partial maintenance; and 3% indicated maintenance furnished.

The stipend paid by the nonaffiliated hospital a aged $36 per month more than was paid by the a ated hospital. The occupancy rate (Sept. 1, 1956) the internships offered by nonaffiliated hospitals 81% compared with a rate of 86% for the affili hospitals. These data might be interpreted to r that the average intern is more interested in (that the average intern is more interested in the fina aspects of the internships than he is in the fina return.

In the list of approved internships, under the co headed "Beginning stipend," the letters FM and refer respectively to "full maintenance" and "p maintenance."

Autopsy Rates

The autopsy rate on hospital deaths is regarded by the Council as an index of the scientific interest of the medical staff in medical education and in the progress of medicine. In table 7 the 20 federal hospitals and the 20 nonfederal hospitals reporting the highest rates for the past year are listed. These hospitals are to be commended for maintaining these rates at a high level.

It is of interest to compare this listing with that of previous years and to note that certain institutions have consistently maintained a high rate. Of the federal hospitals listed, seven are listed for the sixth consecutive year; of the nonfederal hospitals, six have maintained a place on the list for the past six years.

TABLE 7.—*Internship Hospitals with Highest Autopsy Rates 1956*

	Federal	Percent
1.	U. S. Naval Hospital, Corona, Calif.	99
2.	U. S. Naval Hospital, Bethesda, Md.	96
3.	Letterman Army Hospital, San Francisco	96
4.	U. S. Naval Hospital, Great Lakes, Ill.	91
5.	Brooke Army Hospital, Fort Sam Houston, San Antonio, Texas	91
6.	U. S. Naval Hospital, San Diego, Calif.	90
7.	U. S. Naval Hospital, Bremerton, Wash.	90
8.	Madigan Army Hospital, Fort Lewis, Tacoma, Wash.	90
9.	Fitzsimons Army Hospital, Denver	88
10.	U. S. Naval Hospital, Oceanside, Calif.	88
11.	U. S. Naval Hospital, Newport, R. I.	88
12.	U. S. Naval Hospital, Jacksonville, Fla.	88
13.	U. S. Public Health Service Hospital, New Orleans	87
14.	Walter Reed Army Hospital, Washington, D. C.	87
15.	U. S. Naval Hospital, Portsmouth, Va.	87
16.	U. S. Naval Hospital, Chelsea, Mass.	87
17.	Gorgas Hospital, Balboa Heights, C. Z.	87
18.	Veterans Administration Hospital, Salt Lake City	86
19.	Valley Forge Army Hospital, Phoenixville, Pa.	85
20	U. S. Naval Hospital, Oakland, Calif.	82
	Nonfederal	
1.	Children's Hospital, Los Angeles	94
2.	Children's Medical Center, Boston	86
3.	Children's Hospital, Buffalo	86
4.	Milwaukee Children's Hospital, Milwaukee	84
5.	University of Illinois Research and Educational Hospitals, Chicago	84
6.	University of California Hospitals (Herbert C. Moffitt Hospital), San Francisco	83
7.	University of Minnesota Hospitals, Minneapolis	83
8.	Ochsner Foundation Hospital, New Orleans	83
9.	Mary Hitchcock Memorial Hospital, Hanover, N. H.	82
10	Sacred Heart General Hospital, Eugene, Ore.	82
11.	Colorado General Hospital, Denver	82
12.	University Hospitals, Madison, Wis.	81
13	University of California Hospital, Los Angeles	80
14.	University of Nebraska Hospital, Omaha	80
15.	Aguadilla District Hospital, Aguadilla, P. R.	80
16	St. Louis Children's Hospital, St. Louis	79
17.	University Hospital, Ann Arbor, Mich.	77
18.	Virginia Mason Hospital, Seattle	77
19.	Barnes Hospital, St. Louis	76
20.	Evanston Hospital, Evanston, Ill.	76

Of the 852 hospitals reporting, only 5 (less than 1%) failed to meet the minimum autopsy requirements of 25%. These institutions are being urged to increase the rate, as a subminimal rate for two consecutive years may be the basis for withdrawal of approval.

Internship Review Committee

Membership on the Internship Review Committee is composed of representatives from the Council on Medical Education and Hospitals, the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the United States, and the American Academy of General Practice.

The Committee was formed in 1954 to review reports of surveys of intern training programs and make recommendation to the Council for appropriate action. The Committee also may make recommendations to the Council for changes in the requirements for approval of an internship and for changes in policy concerning the education of interns.

Since the Committee was established, it has advocated that the Essentials of an Approved Internship be interpreted with reasonable flexibility. It has followed the policy of giving a hospital an opportunity to correct deficiencies found on survey before approval is actually withdrawn; the hospital is advised concerning the nature of the deficiencies and is encouraged to correct them as quickly as possible.

The objective toward which the Committee is working is to maintain and improve the standards of medical education at the internship level.

National Intern Matching Program

The National Intern Matching Program continues to serve as the central clearing agency for hospitals seeking interns and for medical students desiring internships. For the past six years, hospitals approved for intern training by the Council on Medical Education and Hospitals and medical students seeking first year internships have used the NIMP as the official agency for intern procurement. The plan gives complete freedom of choice to both hospitals and students and has received continued support from both groups.

Hospitals approved by the Council submit a Hospital Agreement to the Program in which they agree to interview only students who participate in the program and to accept all interns matched to them. Students submit similar agreements, stating they will apply only to participating hospitals and will accept the hospital to which they are matched. Hospitals and students make contact with each other by means of the NIMP Directory. Hospitals receive a Directory of all participating students, and students receive a hospital Directory in which are listed all participating hospitals and the type and number of internships each offers. Hospitals are free to interview as many applicants as possible, using any means of evaluation they desire.

The Matching Program has matched more than 35,000 students with no reported error to date. The policies and general management of the program are governed by the organizations most interested in medical education at the intern level. These organizations include, in addition to the Council on Medical Education and Hospitals, the American Hospital Association, the Association of American Medical Col-

Residencies, by Type of Hospital Control

A breakdown of residency appointment by type of hospital control is presented in table 9. Residency programs were offered in 119 federal hospitals, 314 other governmental (nonfederal) hospitals. 741 nongovernment institutions, and 25 proprietary hospitals. The total number of residencies was almost equally divided between governmental and nongovernmental hospitals, with the former having a total of 14,264 appointments, and the latter 14,177. The Veterans Administration offered 3,150 of the 4,249 appointments in federal hospitals.

TABLE 9.—*Number of Residencies, by Type of Hospital Control, 1956-1957*

			No. of Residencies					
			First Yr. Appointments			Total Appointments (All Yr.)		
Control	No. of Approved Hospitals	No. of Approved Programs	Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled	Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled
Federal								
U. S. Air Force	3	5	8	1	89	12	4	75
U. S. Army	12	77	112	66	63	308	164	65
U. S. Navy	9	79	104	38	73	257	128	67
U. S. Public Health Serv.	8	32	41	13	76	133	24	85
Veterans Administration	85	507	746	442	63	2,304	846	73
Other federal	2	13	25	...	100	66	3	96
Totals	119	716	1,036	560	65	3,080	1,169	72
Governmental (Nonfederal)								
State	157	580	1,558	405	79	3,674	875	81
County	74	295	627	115	84	1,422	316	84
City	78	456	1,161	186	86	2,847	404	88
City-county	14	95	124	31	80	282	82	77
Totals	314	1,406	3,461	731	83	8,403	1,612	84
Nongovernmental Nonprofit								
Church operated and church related	284	1,011	1,331	441	75	2,704	1,011	73
Other nonprofit	460	1,913	3,563	706	83	8,703	1,631	84
Totals	741	2,976	4,897	1,150	81	11,407	2,642	81
Proprietary								
Individual	3	4	3	1	75	8	1	89
Partnership	2	5	6	2	75	6	2	75
Corporation	20	32	43	12	78	86	25	77
Totals	25	41	52	15	78	100	28	79
Grand totals	1,199	5,134	9,458	2,492	79	23,012	5,516	81

TABLE 10.—*Number of Residencies, by Bed Capacity, 1956-1957*

			No. of Residencies					
			First Yr. Appointments			Total Appointments (All Yr.)		
Classification	No. of Approved Hospitals	No. of Approved Programs	Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled	Filled Sept. 1, 1956	Vacant Sept. 1, 1956	Percentage Filled
Less than 25 beds	1	2	4	...	100	6	4	60
25-49	17	21	15	6	71	42	12	78
50-99	57	65	107	19	85	242	38	87
100-199	205	385	606	146	81	1,271	300	81
200-299	305	986	1,307	367	79	3,061	771	79
300-499	305	1,698	2,407	720	78	5,804	1,662	78
500-over	301	1,937	4,775	1,163	80	12,364	2,591	83
Other	5	40	87	71	55	222	138	62
Grand totals	1,199	5,131	9,158	2,492	79	23,012	5,516	81

Number of Residencies, by Hospital Bed Capacities

Excluding hospitals of less than 200 beds the hospitals offering residency training are, roughly speaking, divided into three categories/200-299 bed capacity, 300-499, and over 500 beds (table 10), with about 300 hospitals in each group. Seventy-five hospitals with less than 100 bed capacity and 205 with capacities of 100-199 beds offer approved programs. Approximately 92% of the positions offered are in hospitals of 200 or more bed capacity, and approximately 52% are in hospitals with 500 or more beds.

On the basis of such data as are available, it appears that the number of residencies is generally proportionate to the size of the hospital. However, these data do not eliminate the possibility that an individual hospital or individual service may have a disproportionately large resident staff.

RÉSUMÉ

This 31st Annual Report presents factual data on approved internships and residencies, primarily to assist medical students, interns, and residents in determining where they wish to continue their medical education. The report includes an analysis of statistical tables and graphs, in addition to information regarding the National Intern Matching Program, the Internship and Residency Review Committees, and a discussion of the straight internship. Following the report, complete lists of approved intern and residency training programs are published.

A total of 6,635 training programs at the graduat level (internships and residencies) were offered i 1,372 hospitals on Sept. 1, 1956. Of this number hospitals, 156 offered approved intern training onl 513 offered approved resident training only; and 70 gave both intern and resident training. The numb of approved intern positions has increased from 11,6 to 11,895 (2%) during the past year. Residency po tions increased from 26,516 to 28,528 (8%) during t same period.

There was no appreciable change in the percenta of internships filled—83% for this year and also for t previous year. The occupancy rate for residency po tions on Sept. 1, 1956, was 81%, as compared with t same figure of 81% for the previous year.

The status of straight internships has been clarifi The Council will continue to approve straight inte ships in medicine, surgery, pediatrics, and pathology. It will also approve straight internships in obstetrics-gynecology when these programs are of superior educational content and comprehensive scope.

Residency Review Committees are functioning effectively in 16 specialty fields and in General Practice. There are no Residency Review Committees in three specialties. Graduate training has been offered in 29 fields.

The Council has presented this Annual Report in the hope that it will be of assistance to all individuals and organizations interested in medical education at the graduate level.

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1957

HOSPITALS, 854, INTERNSHIPS, 12,404

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association. Three types of internships are approved by the Council—rotating, mixed, and straight:

1. A rotating internship is defined as one that provides supervised experience in internal medicine, surgery, pediatrics, obstetrics, and their related subspecialties, together with experience in laboratory and radiologic diagnosis.

2. A mixed internship is defined as one that provides supervised experience in two or more, but not in all, of the clinical divisions named.

3. A straight internship is defined as one that provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, pediatrics, pathology, and obstetrics-gynecology.

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services have been identified in the following lists by the symbols X and x. Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with the symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program. Certain internships in hospitals designated as teaching hospitals may not provide for assignments to teaching services. Other internships may provide for only a portion of the internship period being spent on teaching services. Prospective interns desiring specific information concerning internship assignments to teaching services in a hospital are advised to communicate with the dean of the medical school with which the hospital is affiliated. Medical school affiliations are indicated by footnotes 10 to 89 placed immediately after the symbol X or x. The list of medical schools appears on page 482. The plus (+) sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships. The beginning stipends for Federal hospitals have not been listed; they are established in accordance with government pay tables. When applying for internships in Air Force, Army, Navy or Public Health Service hospitals, applications should be directed to the medical departments of the Air Force, Army, Navy, or the United States Public Health Service and not to the individual hospitals. Although applications are made to the service rather than to the individual hospitals, all of the services ask students to list three hospitals in order of preference. Every possible effort is made to place successful candidates in accordance with their desires. Because of the needs of the service it should be understood that students may, in some instances, be assigned to other hospitals than those for which they have indicated a preference.

Hospitals listed below (pages 461 to 481) make first year internship appointments through the National Intern Matching Program, Inc. The number and type of internships as listed represent appointments for the intern year 1958-1959.

FEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES ARMY—Hospitals, 9; Internships, 164										
Letterman Army Hospital +[1-4-5] Presido, San Francisco	Fed	900	10,934	Req	96	12	No	...		
Fitzsimons Army Hospital +[3-4] Denver 8	Fed	1,250	9,146	Req	88	12	No	...		
Walter Reed Army Hospital +[1-4]-x19-20 (Army Medical Center) 6825 16th St., N.W., Washington 12, D.C.	Fed	1,250	13,737	Req	87	12	100	...		
U. S. Army Hospital +[1] Fort Benning, Ga.	Fed	600	12,373	Req	81	12	No	...	164 Rotating General Office of the Surgeon General, Department of the Army, Washington 25, D.C. Attn. Chief Personnel Division	00411
Valley Forge Army Hospital [1-4] Phoenixville, Pa.	Fed	1,000	6,323	Req	85	12	101	...		
William Beaumont Army Hospital +[4] Hayes Ave., El Paso, Texas	Fed	650	12,516	Req	76	12	No	...		
Brooke Army Hospital +[1-3-4] Brooke Army Medical Center Fort Sam Houston, San Antonio, Texas	Fed	1,093	14,328	Req	91	12	No	...		
Madigan Army Hospital +[4]-x86 Fort Lewis, Tacoma 9, Wash.	Fed	600	11,387	Req	90	12	No	...		
Tripler Army Hospital +[1] Moanalua Gardens, Honolulu, T. H.	Fed	1,200	21,466	Req	75	12	No	...		
UNITED STATES AIR FORCE—Hospitals, 1; Internships, 84										
U. S. Air Force Hospital +[4] Lackland Air Force Base San Antonio, Texas 60 of the above 84 Air Force internships are divided among the Army hospitals listed above.	Fed	1,000	10,697	Req	75	12	No	...	84 Rotating General Directorate of Staffing and Education, Office of the Surgeon General, Headquarters, U. S. Air Force, Washington 25, D. C.	00311
UNITED STATES NAVY—Hospitals, 14; Internships, 176										
U. S. Naval Hospital +[1-4-5] 8750 Mountain Blvd., Oakland 14, Calif.	Fed	1,325	14,374	Req	82	12	No	...		
U. S. Naval Hospital [1-4] Camp Pendleton, Oceanside, Calif.	Fed	1,109	11,564	Req	88	12	No	...		
U. S. Naval Hospital +[1-4] Park Blvd., San Diego 34, Calif.	Fed	2,250	28,348	Req	90	12	No	...	176 Rotating General Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.	00211
U. S. Naval Hospital [1-3] Jacksonville 14, Fla.	Fed	484	6,948	Req	88	12	No	...		
U. S. Naval Hospital [1] Pensacola, Fla.	Fed	644	6,425	Req	56	12	No	...		
U. S. Naval Hospital +[1-3-4] Great Lakes, Ill.	Fed	800	12,137	Req	91	12	No	...		

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.
Abbreviations and other references will be found on pages 482 and 483.

FEDERAL—Continued

UNITED STATES NAVY—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
U. S. Naval Hospital +1-2 Rockville Pike, Bethesda 14, Md.	Fed	1,000	13,591	Req	96	12	No	...		
U. S. Naval Hospital +1-4-x38-40 Chelsea 50, Mass.	Fed	550	7,621	Req	87	12	No	...		
U. S. Naval Hospital +1-4 Linden Blvd., St. Albans 25, N. Y.	Fed	1,225	10,976	Req	81	12	No	...		
U. S. Naval Hospital +1-3-4 17th and Pattison Ave., Philadelphia 45	Fed	1,050	11,400	Req	63	12	No	...	200 Rotating General Bureau of Medicine and Surgery Navy Department Washington 25, D C	[illegible]
U. S. Naval Hospital 1-3 3rd and Cypress Sts., Newport, R. I.	Fed	525	6,987	Req	88	12	No	...		
U. S. Naval Hospital 1-3 Charleston, S. C.	Fed	250	5,050	Req	61	12	No	...		
U. S. Naval Hospital +1-3-4 Portsmouth, Va.	Fed	1,525	22,512	Req	87	12	No	...		
U. S. Naval Hospital 1-3 Bremerton, Wash.	Fed	325	5,112	Req	90	12	No	...		

UNITED STATES PUBLIC HEALTH SERVICE—Hospitals, 7; Internships, 86

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
U. S. Public Health Service Hospital +1-4-5 15th Ave. and Lake St., San Francisco 18, Calif.	Fed	429	4,601	Req	77	12	102	...		
U. S. Public Health Service Hospital +1-4-5 210 State St., New Orleans 18	Fed	393	4,718	Req	87	12	103	...	84 Rotating General 2 Mix. Med. Surg. Public Health Service Hospitals Public Health Service, Department of Health, Education and Welfare Washington 25, D C Attn Chairman Committee on Residents and Interns	[illegible] [illegible]
U. S. Public Health Service Hospital +1-3-4 Wyman Park Dr. and 31st St., Baltimore 11	Fed	365	4,988	Req	77	12	104	...		
U. S. Public Health Service Hospital +1-3-5 77 Warren St., Boston 35	Fed	248	3,198	Req	79	12	No	...		
U. S. Public Health Service Hospital +1-3-4 Bay St. and Vanderbilt Ave., Stapleton S I., 4, N. Y.	Fed	600	8,157	Req	68	12	No	...		
U. S. Public Health Service Hospital +1-4 Hampton Blvd., Norfolk 8, Va.	Fed	247	4,225	Req	74	12	105	...		
U. S. Public Health Service Hospital +1-3-4-x86 1131 14th Ave. S., Seattle 44	Fed	333	4,218	Req	82	12	106	...		

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Hospitals, 2; Internships, 30

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Freedmen's Hospital +1-4-X21 6th and Bryant Sts., N. W., Washington 25, D. C.	Fed	470	8,575	Req	63	12	No	171FM	18 Rotating General	[illegible]
Saint Elizabeths Hospital +1-3-4-x19-20 2700 Nichols Ave., S. E., Washington 20, D. C.	Fed	411	1,327	Req	53	12	107	258	12 Rotating General	84

VETERANS ADMINISTRATION—Hospitals, 6; Internships, 94

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Veterans Administration Hospital +1-3 5901 E. 7th St., Long Beach 4, Calif.	Fed	1,600	10,073	Req	81	12	108	...	24 Rotating General 6 Straight Medicine	[illegible] [illegible]
Veterans Administration Hospital +1-4-5-X13 Wilshire and Sawtelle Blvds., Los Angeles 25	Fed	1,281	11,438	None	82	12	109	...	24 Rotating General 6 Straight Medicine	[illegible] [illegible]
Veterans Administration Hospital +1-3-X23 1670 Peachtree Rd., N. E., Atlanta 19, Ga.	Fed	300	4,152	Req	72	12	110	...	7 Straight Medicine	[illegible]
Veterans Administration Hospital +1-X66 921 N. E. 13th St., Oklahoma City, 4, Okla.	Fed	488	5,118	None	80	12	111	...	4 Straight Medicine	[illegible]
Veterans Administration Hospital +1-3-X79 4500 S. Lancaster Rd., Dallas 2, Texas	Fed	397	4,792	None	80	12	112	...	16 Straight Medicine	[illegible]
Veterans Administration Hospital +3-X82 12th Ave. and E St., Salt Lake City 13	Fed	194	2,092	Req	86	12	114	...	3 Rotating General 4 Straight Medicine	[illegible]

NONFEDERAL

ALABAMA—Hospitals, 9; Internships, 121

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Birmingham Baptist Hospitals +1 708 Tuscaloosa Ave., Birmingham 11	Church	300	13,195	Req	38	12	115	200FM	10 Rotating General	[illegible]
Carraway Methodist Hospital +1-3 2706 16th Ave. N., Birmingham 4	Church	240	12,017	Req	33	12	No	200FM	9 Rotating General	[illegible]
St. Vincent's Hospital 2701 9th Ct. S., Birmingham 5	Church	200	8,060	Req	40	12	115	225-250FM	8 Rotating General	[illegible]
South Highlands Infirmary 1-3 1127 S. 12th St., Birmingham 5	Corp	158	6,068	Req	30	12	115	250PM	6 Rotating General	[illegible]
University Hospital and Hillman Clinic +1-4-X10 619 S. 19th St., Birmingham 3	State	660	25,459	Req	49	12	116	100FM	36 Rotating General 12 Straight Medicine 3 Straight Pediatrics	[illegible] [illegible] [illegible]
Lloyd Noland Hospital +1-3 P. O. Box 538, Fairfield	NPCorp	305	10,405	Req	44	12	No	200FM	13 Rotating General	[illegible]
Holy Name of Jesus Hospital 1-3 Moragne Park, Gadsden	Church	140	6,957	....	28	12	No	200PM	4 Rotating General	[illegible]
Mobile County Hospital +1-3 850 St. Anthony St., Mobile 16	CyCo	263	7,073	Req	50	12	No	200-250FM	15 Rotating General	[illegible]
Druid City Hospital 1 809 Birmingham Rd., Tuscaloosa	CyCo	247	13,501	Req	27	12	No	200FM	5 Rotating General	[illegible]

ARIZONA—Hospitals, 5; Internships, 59

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Good Sam[illegible] +1 1033 E. [illegible]	Church	311	16,878	None	43	12	117	150FM	15 Rotating General	[illegible]
Maricopa [illegible]tal +1-3 3435 W. Durango St., Phoenix	County	425	6,390	Req	51	12	No	150FM	12 Rotating General	[illegible]
St. Joseph's Hospital +1-3 350 W. Thomas Rd., Phoenix	Church	325	16,583	Req	54	12	117	150-200FM	15 Rotating General	[illegible]
St. Mary's Hospital and Sanatorium +1-3 St. Mary's Rd., Tucson	Church	300	14,127	Req	43	12	118	100FM	9 Rotating General	[illegible]
Tucson Medical Center +1-3 E. Grant Rd., at Beverly Blvd., Tucson	NPCorp	226	9,792	Req	58	12	118	100FM	8 Rotating General	[illegible]

ARKANSAS—Hospitals, 3; Internships, 60

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Arkansas Baptist Hospital +1 1700 W. 13th St., Little Rock	Church	379	14,220	None	29	12	No	200FM	16 Rotating General	[illegible]
St. Vincent Infirmary +1-3 Markham and Hayes Sts., Little Rock	Church	310	13,898	Req	42	12	119	200FM	12 Rotating General	[illegible]
University Hospital +1-X11 4301 W. Markham St., Little Rock	State	236	6,698	Req	71	12	120	140	14 Rotating General 5 Straight Medicine 3 Straight Pediatrics 10 Mixed (Med.-Ped.)	[illegible] [illegible] [illegible] [illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 482 and 483.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
CALIFORNIA—Hospitals, 43; Internships, 814										
eral Hospital of Riverside County +^{1} 9851 Magnolia Ave., Arlington	County	353	4,364	Req	38	12	121	205PM	10 Rotating General	85011
rick Memorial Hospital +$^{1-3-4}$ 2001 Dwight Way, Berkeley 4	NPCorp	201	8,083	Req	67	12	No	100FM	6 Rotating General	02011
Joaquin General Hospital +^{1} French Camp	County	700	7,210	Req	57	12	No	175FM	15 Rotating General	02111
eral Hospital of Fresno County +$^{1-4}$ 4475 E. Ventura Ave., Fresno 2	County	660	10,009	Req	43	12	No	195PM	20 Rotating General	02211
ndale Sanitarium and Hospital +^{1} 1509 E. Wilson Ave., Glendale 6	Church	292	11,229	Req	69	12	No	300PM	12 Rotating General	02311
ma Linda Sanitarium and Hospital +$^{1-3}$-x12 Loma Linda	Church	168	6,925	Req	75	12	No	192PM	10 Rotating General	02411
Mary's Long Beach Hospital +^{3} 509 E. 10th St., Long Beach 13	Church	250	16,327	Req	38	12	No	125-150FM	6 Rotating General	02611
aside Memorial Hospital +$^{1-3}$ 1401 Chestnut Ave., Long Beach 13	NPCorp	374	17,240	Req	34	12	122	160PM	15 Rotating General	02711
lifornia Hospital +$^{1-3}$ 1414 S. Hope St., Los Angeles 15	Church	305	14,364	Req	42	12	123	125FM	8 Rotating General	02911
dars of Lebanon Hospital +$^{1-3}$ 4833 Fountain Ave., Los Angeles 29	NPCorp	466	16,219	Req	56	12	122	100FM	15 Rotating General	03011
ildrens Hospital +^{1}-X14 4614 Sunset Blvd., Los Angeles 27	NPCorp	226	8,871	Req	94	12	No	75FM	2 Straight Pediatrics	03134
ospital of the Good Samaritan +$^{1-3}$ 1212 Shatto St., Los Angeles 17	Church	472	15,619	Req	40	12	124	175FM	8 Rotating General	03211
os Angeles County Hospital +^{1}-X12-14-x13 1200 N. State St., Los Angeles 33	County	3,132	86,619	Req	35	12	No	160	142 Rotating General 8 Straight Medicine	03311 03332
esbyterian Hospital—Olmsted Memorial +$^{1-3}$ 1322 N. Vermont Ave., Los Angeles 27	Church	300	11,721	Req	29	12	No	140FM	10 Rotating General	03511
ueen of Angels Hospital +$^{1-3}$ 2301 Bellevue Ave., Los Angeles 26	Church	476	19,059	Req	44	12	125	150FM	16 Rotating General	03611
anta Fe Coast Lines Hospital + 610 S. St. Louis St., Los Angeles 23	NPCorp	196	5,134	Req	74	12	124	150FM	9 Rotating General	03811
niversity of California Hospital +$^{1-3}$-X13 10833 Le Conte Ave., Los Angeles 24	State	320	4,849	Req	80	12	No	160	12 Straight Medicine 9 Straight Surgery 6 Straight Pediatrics 2 Straight Pathology	95632 95633 95634 95636
hite Memorial Hospital +$^{1-3}$-X12 1720 Brooklyn Ave., Los Angeles 33	Church	244	8,831	Req	59	12	No	205PM	16 Rotating General	04011
ighland-Alameda County Hospital +$^{1-4-5}$ 2701 14th Ave., Oakland 6	County	485	14,203	Req	58	12	126	100FM	34 Rotating General	04111
aiser Foundation Hospital +$^{1-3}$ 280 W. MacArthur Blvd., Oakland 11	NPCorp	300	11,487	Req	75	12	No	190	16 Rotating General	04211
range County General Hospital $^{1-3-4}$ 1271 Santa Ana Blvd., Orange	County	576	5,624	Req	47	12	No	285	20 Rotating General	04311
ollis P. and Howard Huntington Memorial Hospital +$^{1-3}$ 100 Congress St., Pasadena 2	NPCorp	290	11,305	Req	74	12	127	187PM	9 Rotating General	04411
acramento County Hospital +$^{1-5}$ 2315 Stockton Blvd., Sacramento 17	County	732	11,318	Req	59	12	No	120FM	24 Rotating General	04611
an Bernardino County Charity Hospital +-x12 780 E. Gilbert St., San Bernardino	County	419	6,696	Req	58	12	No	130PM	14 Rotating General	04711
ercy Hospital +$^{1-3}$ Hillcrest Dr., San Diego 3	Church	322	17,290	Req	50	12	No	150FM	12 Rotating General	04811
San Diego County General Hospital +$^{4-5}$ N. Front St., San Diego 3	County	789	8,832	Req	46	12	128	150FM	15 Rotating General	04911
Children's Hospital +$^{1-3}$-x16 3700 California St., San Francisco 18	NPCorp	235	8,269	Req	60	12	No	100FM	6 Rotating General	05011
Franklin Hospital +$^{1-3}$ 14th and Noe Sts., San Francisco 14	NPCorp	250	6,706	Req	38	12	No	150FM	16 Rotating General	05111
French Hospital +$^{1-3}$ 4131 Geary Blvd., San Francisco 18	NPCorp	205	6,114	Req	37	12	No	100FM	10 Rotating General	05211
Kaiser Foundation Hospital +$^{1-3}$ 2425 Geary Blvd., San Francisco 15	NPCorp	216	9,341	Req	74	12	No	190	16 Rotating General	95911
Mary's Help Hospital +$^{1-3}$ 145 Guerrero St., San Francisco 3	Church	180	7,642	Req	45	12	No	100FM	6 Rotating General	05311
Mount Zion Hospital +$^{1-3}$ 1600 Divisadero St., San Francisco 15	NPCorp	292	11,350	Req	66	12	No	100FM	13 Rotating General	05411
St. Luke's Hospital +$^{1-3}$ 1580 Valencia St., San Francisco 10	Church	229	9,682	Req	50	12	No	100FM	8 Rotating General	05611
St Mary's Hospital +$^{1-3}$ 2200 Hayes St., San Francisco 17	Church	371	11,931	Req	66	12	No	100-150FM	15 Rotating General	05711
San Francisco Hospital +$^{1-4-5}$-X15-16 1001 Potrero Ave., San Francisco 10	CyCo	1,132	20,463	Req	46	12	129	140		
Stanford University Service Office of the Dean Stanford University School of Medicine 2398 Sacramento St., San Francisco 15									29 Rotating General	05911
University of California Service Dr Isidore Edelman San Francisco Hospital									30 Rotating General	05811
Southern Pacific General Hospital +$^{1-3}$ 1400 Fell St., San Francisco 17	NPCorp	450	9,675	Req	70	12	130	125FM	23 Rotating General	06011
Stanford University Hospitals +$^{1-3}$-X15 Clay and Webster Sts., San Francisco 15	NPCorp	351	11,936	Req	76	12	No	25FM	7 Straight Medicine 7 Straight Surgery 1 Straight Pediatrics	06132 06133 06134
University of California Hospitals +$^{1-3}$-X16 (Herbert C. Moffitt Hospital) Parnassus and First Aves., San Francisco 22 Dr. J. B. Saunders, Dean University of California School of Medicine, San Francisco 22	State	470	12,645	Req	83	12	131	169	20 Rotating General 12 Straight Medicine 12 Straight Surgery 5 Straight Pediatrics 3 Straight Pathology	06111 06132 06133 06134 06136
Santa Clara County Hospital +$^{1-3-4}$ Los Gatos Rd., San Jose 28	County	438	6,165	Req	70	12	No	135FM	16 Rotating General	06311
Santa Barbara Cottage Hospital +$^{1-3}$ 320 W. Pueblo St., Santa Barbara	NPCorp	220	8,002	Req	63	12	132	175FM	10 Rotating General	06411
St. John's Hospital + 1328 22nd St., Santa Monica	Church	275	12,596	Req	56	12	No	150PM	6 Rotating General	06511
Santa Monica Hospital $^{1-3}$ 1250 16th St., Santa Monica	Church	236	12,920	Req	49	12	133	125FM	8 Rotating General	06611
Harbor General Hospital +$^{1-4}$-X13 1124 W. Carson St., Torrance	County	688	11,508	Req	52	12	No	160	34 Rotating General	06711

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COLORADO—Hospitals 11; Internships, 137

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Glockner-Penrose Hospital +$^{1-3}$ 2200 N. Tejon St., Colorado Springs	Church	210	5,955	Req	71	12	No	150FM	2 Rotating General	[illegible]
General Rose Memorial Hospital +$^{1-3}$ 1050 Clermont St., Denver 20	NPCorp	250	11,587	Req	55	12	No	250FM	9 Rotating General	[illegible]
Mercy Hospital +$^{1-3}$ 1619 Milwaukee St., Denver 6	Church	250	10,241	Req	47	12	No	150FM	9 Rotating General	[illegible]
Porter Sanitarium and Hospital +$^{1-3}$ 2525 S. Downing St., Denver 10	Church	210	8,418	Req	47	12	135	150PM	10 Rotating General	[illegible]
Presbyterian Hospital +$^{1-3}$ 19th Ave. and Gilpin St., Denver 18	Church	198	8,818	Req	71	12	136	150FM	10 Rotating General	[illegible]
St. Anthony Hospital +$^{1-3}$ W. 16th and Quitman Sts., Denver 4	Church	253	12,979	Req	61	12	No	150FM	9 Rotating General	[illegible]
St. Joseph's Hospital +$^{1-3}$ 1818 Humboldt St., Denver 18	Church	372	15,296	Req	64	12	137	150FM	12 Rotating General	[illegible]
St. Luke's Hospital +^{1} 601 E. 19th Ave., Denver 3	Church	436	16,295	Req	60	12	136	215PM	12 Rotating General	[illegible]
University of Colorado Medical Center Colorado General Hospital +^{1}-X17 4200 E. 9th Ave., Denver 20	State	274	6,431	None	82	12	No	50FM	16 Rotating General	[illegible]
Denver General Hospital +$^{1-3-4}$-X17 W. 6th Ave. and Cherokee St., Denver 4	CyCo	442	7,279	Req	59	12	134	105PM	12 Community Rotating 16 Rotating General 16 Community Rotating	[illegible]
Weld County General Hospital +$^{1-3}$ 1801 16th St., Greeley	County	220	7,510	Req	51	12	No	100FM	4 Rotating General	[illegible]

CONNECTICUT—Hospitals, 22; Internships, 220

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Bridgeport Hospital +$^{1-3}$ 267 Grant St., Bridgeport 10	NPCorp	387	14,071	Req	48	12	No	190FM	8 Rotating General 2 Straight Medicine 2 Straight Surgery	[illegible]
St. Vincent's Hospital +$^{1-3}$ 2820 Main St., Bridgeport 6	Church	368	16,193	Req	49	12	No	250	15 Rotating General	[illegible]
Bristol Hospital $^{1-3}$ Newell Rd., Bristol	NPCorp	160	7,024	Req	41	12	No	150FM	5 Rotating General	[illegible]
Danbury Hospital +$^{1-3}$ 95 Locust Ave., Danbury	NPCorp	171	6,773	Req	52	12	No	200FM	7 Rotating General	[illegible]
Griffin Hospital ^{3} Seymour Ave. and Division St., Derby	NPCorp	153	5,678	Req	47	12	138	200FM	6 Rotating General	[illegible]
Greenwich Hospital +$^{1-3}$ Perryridge Rd., Greenwich	NPCorp	245	7,108	Req	71	12	139	100FM	9 Rotating General	[illegible]
Hartford Hospital +$^{1-3-4}$ 80 Seymour St., Hartford 15	NPCorp	724	28,783	Req	67	24	No	50FM	18 Rotating General	[illegible]
Hartford Municipal Hospital and Health Center +$^{1-3}$ 2 Holcomb St., Hartford 5	City	219	3,697	Req	51	12	No	120FM	9 Rotating General	[illegible]
Mount Sinai Hospital ^{3} 500 Blue Hills Ave., Hartford 12	NPCorp	115	5,811	Req	51	12	No	200FM	6 Rotating General	[illegible]
St. Francis Hospital +$^{1-3-4}$ 114 Woodland St., Hartford 5	Church	578	20,301	Req	47	12	No	100-125FM	15 Rotating General	[illegible]
Manchester Memorial Hospital $^{1-3}$ 71 Haynes St., Manchester	NPCorp	163	8,629	Req	49	12	140	300PM	4 Rotating General	[illegible]
Meriden Hospital +$^{1-3}$ 181 Cook Ave., Meriden	NPCorp	215	8,630	Req	47	12	No	150FM	4 Rotating General	[illegible]
Middlesex Memorial Hospital +$^{1-3}$ 28 Crescent St., Middletown	NPCorp	168	7,498	....	50	12	No	150FM	6 Rotating General	[illegible]
New Britain General Hospital +$^{1-3}$ 92 Grand St., New Britain	NPCorp	288	10,714	Req	63	12	No	175FM	8 Rotating General	[illegible]
Grace-New Haven Community Hospital +$^{1-3-4}$-X18 789 Howard Ave., New Haven 4	NPCorp	661	20,103	Req	64	12	141	25FM	18 Straight Medicine 15 Straight Surgery 7 Straight Pediatrics 6 Straight Pathology	[illegible]
Hospital of St. Raphael +^{3} 1450 Chapel St., New Haven 11	Church	370	12,675	Req	35	12	No	125-205FM	12 Rotating General	[illegible]
Lawrence and Memorial Hospitals +$^{1-3}$ 365 Montauk Ave., New London	NPCorp	224	10,216	Req	43	12	No	200FM	3 Rotating General	[illegible]
Norwalk Hospital +$^{1-3}$ 24 Stevens St., Norwalk	NPCorp	310	11,793	Req	59	12	No	160FM	6 Rotating General	[illegible]
William W. Backus Hospital ^{3} 326 Washington St., Norwich	NPCorp	145	6,458	Req	45	12	No	200FM	3 Rotating General	[illegible]
Stamford Hospital +$^{1-3}$ 190 W. Broad St., Stamford	NPCorp	297	10,462	Req	59	12	No	100FM	10 Rotating General	[illegible]
St. Mary's Hospital +$^{1-3-4}$ 56 Franklin St., Waterbury 6	Church	347	13,455	Req	38	12	No	200FM	7 Rotating General	[illegible]
Waterbury Hospital +$^{1-4}$ 64 Robbins St., Waterbury 8	NPCorp	364	15,325	Req	57	12	No	200FM	9 Rotating General	[illegible]

DELAWARE—Hospitals, 3; Internships, 34

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Delaware Hospital +$^{1-3-4}$ 501 W. 14th St., Wilmington 1	NPCorp	377	13,598	Req	72	12	No	190FM	16 Rotating General	[illegible]
Memorial Hospital +$^{1-3-4}$-x68 1501 N. Van Buren St., Wilmington 6	NPCorp	278	8,838	Req	60	12	No	150FM	12 Rotating General	[illegible]
Wilmington General Hospital +$^{1-3}$ Chestnut at Broom St., Wilmington 5	NPCorp	187	7,193	Req	49	12	No	150FM	6 Rotating General	[illegible]

DISTRICT OF COLUMBIA—Hospitals, 7; Internships, 149

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Central Dispensary and Emergency Hospital Washington	See Washington Hospital Center									
Dist. of Columbia General Hosp. +$^{1-3-4}$-X19-20-x21 19th and E. Sts., S.E., Washington 3	City	1,093	23,038	Req	52	12	No	208	47 Rotating General	[illegible]
Doctors Hospital +$^{1-3}$ 1815 Eye St. N.W., Washington 6	Corp	237	9,495	Req	67	12	142	150PM	6 Rotating General	[illegible]
Garfield Memorial Hospital Washington	See Washington Hospital Center									
Georgetown University Hospital +$^{1-3}$-X19 3800 Reservoir Rd. N.W., Washington 7	Church	363	13,409	Req	64	12	No	75FM	6 Straight Medicine 6 Mixed (Med.-Surg.)	[illegible]
George Washington University Hospital +$^{1-3}$-X20 901 23rd St. N.W., Washington 7	NPCorp	410	16,180	Req	63	12	107	125PM	13 Rotating (Med. Maj.) 11 Rotating (Surg. Maj.) 2 Rotating (Path. Maj.)	[illegible]
Providence Hospital +$^{1-3-4}$ 1150 Varnum St. N.E., Washington 17	Church	350	11,590	Req	49	12	No	250	18 Rotating General	[illegible]

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Abbreviations and other references will be found on pages 482 and 483.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
DISTRICT OF COLUMBIA—Continued										
ashington Hospital Center +$^{1-3-4}$ (Central Dispensary and Emergency Hospital and Garfield Memorial Hospital) 1st St. and Michigan Ave., N.W., Washington 11	NPCorp	595	20,851	Req	60	12	144	200FM	30 Rotating General	80011
ashington Sanitarium and Hospital $^{1-3}$ 7600 Carroll Ave., Washington 12	Church	240	8,110	Req	42	12	144	225PM	10 Rotating General	25411
FLORIDA—Hospitals, 12; Internships, 198										
aptist Memorial Hospital +$^{1-3}$ 800 Miami Rd., Jacksonville 7	Church	300	8,513	Req	58	12	145	300	12 Rotating General	97011
uval Medical Center +$^{1-3}$ 900 Jefferson St., Jacksonville 8	County	335	8,464	Req	54	12	No	125FM	18 Rotating General	10111
t. Luke's Hospital + 8th St. and Boulevard, Jacksonville 8	NPCorp	215	10,159	Req	39	12	145	275	5 Rotating General	10211
t. Vincent's Hospital +$^{1-3}$ Barrs and St. Johns Ave., Jacksonville 4	Church	325	15,154	Req	46	12	No	200FM	18 Rotating General	10311
ackson Memorial Hospital +$^{1-4}$-X22 1700 N.W. 10th Ave., Miami 36	County	859	26,764	Req	48	12	No	50FM	60 Rotating General 6 Straight Medicine	10411 10432
ount Sinai Hospital of Greater Miami +$^{1-3}$ 4300 Alton Rd., Miami Beach 40	NPCorp	258	9,924	Req	69	12	146	150FM	18 Rotating General	10511
t. Francis Hospital +$^{1-3}$ 250 W. 63rd St., Miami Beach 41	Church	240	7,266	Req	66	12	146	160FM	8 Rotating General	10611
range Memorial Hospital +$^{1-3}$ 1416 S. Kuhl Ave., Orlando	NPCorp	390	13,724	Req	46	12	No	300	12 Rotating General	10711
acred Heart Hospital +$^{1-3}$ 1010 N. 12th Ave., Pensacola	Church	130	6,537	Req	33	12	No	200FM	3 Rotating General	10811
ound Park Hospital +^{1} 7th St. and 6th Ave. S., St. Petersburg 5	City	379	11,906	Req	29	12	147	260PM	12 Rotating General	91111
ampa General Hospital +$^{1-3}$ Davis Islands, Tampa 6	City	300	14,071	Req	42	12	148	200FM	22 Rotating General	10911
t. Mary's Hospital 900 45th St., West Palm Beach	Church	200	7,790	Req	32	12	No	200PM	4 Rotating General	91411
GEORGIA—Hospitals, 12; Internships, 204										
Athens General Hospital ^{1} 797 Cobb St., Athens	County	150	4,309	Req	34	12	No	275PM	6 Rotating General	85611
*St. Mary's Hospital $^{1-3}$ 390 N. Milledge Ave., Athens	Church	100	4,696	Req	35	12	149	200FM	4 Rotating General	.....
Crawford W. Long Memorial Hospital +$^{1-3}$ 35 Linden Ave. N.E., Atlanta 3	NPCorp	481	21,750	Req	43	12	110	275	18 Rotating General	11111
Georgia Baptist Hospital +$^{1-3}$ 300 Boulevard N.E., Atlanta 12	Church	475	22,162	Req	49	12	No	280FM	20 Rotating General	11211
Grady Memorial Hospital +$^{1-3-4}$-X23 36 Butler St. S.E., Atlanta 3	County	670	19,994	Req	52	12	No	10FM	20 Rotating General 16 Straight Medicine 12 Straight Surgery 4 Straight Pediatrics	11311 11332 11333 11334
Piedmont Hospital + 551 Capitol Ave. S.W., Atlanta	NPCorp	132	6,424	None	50	12	110	225PM	10 Rotating General	11411
St. Joseph's Infirmary +$^{1-3}$ 265 Ivy St. N.E., Atlanta 3	Church	300	13,346	Req	55	12	No	255PM	12 Rotating General	11511
University Hospital +^{1}-X24 University Pl., Augusta	City	421	13,090	Req	32	12	No	150PM	24 Rotating General	11611
Medical Center +$^{1-3}$ 700 19th St., Columbus	City	226	10,573	Req	40	12	No	200FM	12 Rotating General	11811
Emory University Hospital +$^{1-3}$-X23 Emory University	NPCorp	309	11,848	Req	60	12	No	165PM	8 Straight Medicine 6 Straight Surgery 2 Straight Pathology	11932 11933 11936
Macon Hospital +^{1} 763 Hemlock St., Macon	CyCo	517	15,168	Req	30	12	No	200FM	20 Rotating General	12011
Memorial Hospital of Chatham County +$^{1-3}$ 63rd St. and Waters Ave., Savannah	Dist	299	....	Req	62	12	No	250FM	10 Rotating General	97111
ILLINOIS—Hospitals, 52; Internships, 782										
MacNeal Memorial Hospital +$^{1-3}$ 3249 S. Oak Park Ave., Berwyn	NPCorp	275	12,379	Req	36	12	No	100-150FM	12 Rotating General	12111
St. Francis Hospital $^{1-3}$ 12948 S. Gregory St., Blue Island	Church	160	6,765	Req	41	12	No	175FM	6 Rotating General	93211
American Hospital +$^{1-3}$ 850 W. Irving Park Rd., Chicago 13	NPCorp	152	5,310	Req	45	12	No	50FM	5 Rotating General	12311
Augustana Hospital +$^{1-3}$ 411 W. Dickens Ave., Chicago 14	Church	320	9,232	Req	50	12	No	100FM	12 Rotating General	12411
Chicago Wesley Memorial Hospital +$^{1-3}$-X26 250 E. Superior St., Chicago 11	Church	568	17,084	None	64	12	150	50FM	32 Rotating General	16211
Columbus Hospital +^{3} 2520 N. Lakeview A	Church	350	11,311	....	53	12	151	75FM	20 Rotating General	12611
Cook County Hospital [illegible] 1825 W. Harrison St	County	3,200	72,386	Req	29	12	No	70FM	124 Rotating General	12711
Edgewater Hospital +$^{1-3}$ 5700 N. Ashland Ave., Chicago 26	NPCorp	288	11,320	Req	37	12	No	100FM	12 Rotating General	12811
Englewood Hospital +^{3} 6001 S. Green St., Chicago 21	NPCorp	154	6,753	Req	48	12	No	150FM	6 Rotating General	12911
Evangelical Hospital $^{1-3}$ 5421 S. Morgan St., Chicago 9	Church	195	8,228	Req	40	12	No	150FM	7 Rotating General	13011
Grant Hospital +^{1}-x29 551 W. Grant Pl., Chicago 14	NPCorp	260	7,743	Req	50	12	150	200FM	9 Rotating General	13211
Hospital of St. Anthony de Padua +$^{1-3}$ 2875 W. 19th St., Chicago 23	Church	212	7,876	Req	36	12	No	200FM	8 Rotating General	13511
Illinois Central Hospital +$^{1-3}$-x29 5800 Stony Island Ave., Chicago 37	NPCorp	306	7,866	Req	59	12	152	180FM	12 Rotating General	13611
Illinois Masonic Hospital +$^{1-3}$ 836 Wellington Ave., Chicago 14	NPCorp	360	12,307	Req	50	12	No	75-100FM	12 Rotating General	13711
Jackson Park Hospital $^{1-3}$ 7531 Stony Island Ave., Chicago 49	Corp	146	4,403	None	38	12	No	150FM	8 Rotating General	13811
Loretto Hospital +$^{1-3}$-x27 645 S. Central Ave., Chicago 44	Church	150	5,629	Req	51	12	152	150FM	8 Rotating General	13911
Lutheran Deaconess Home and Hospital +^{3} 1138 N. Leavitt St., Chicago 22	Church	186	6,622	Req	38	12	No	150FM	5 Rotating General	14011
Mercy Hospital +$^{1-3}$-X27 2537 S. Prairie Ave., Chicago 16	Church	356	9,450	Req	48	12	No	200FM	15 Rotating General	14111

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
ILLINOIS—Continued									
Michael Reese Hospital +1-3-X25-26 2839 S. Ellis Ave., Chicago 16	NPCorp	811	10,631	Req	61	12	No	100FM	38 Rotating General 1 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics
Mount Sinai Hospital +1-3-X25 2750 W. 15th Pl., Chicago 8	NPCorp	373	12,509	Req	51	12	No	50-100FM	12 Rotating General
Norwegian-American Hospital +1-3 1044 N. Francisco Ave., Chicago 22	NPCorp	171	6,524	Req	34	12	No	200FM	6 Rotating General
Passavant Memorial Hospital +1-3-X26 303 E. Superior St., Chicago 11	NPCorp	203	8,592	None	71	12	150	25FM	12 Rotating General
Presbyterian Hospital +1-X29 1753 W. Congress Pkwy., Chicago 12	Church	433	11,936	Req	71	12	No	100FM	26 Rotating General
Provident Hospital +3 426 E. 51st St., Chicago 15	NPCorp	203	6,789	Req	51	12	No	175FM	9 Rotating General 1 Straight Surgery
Ravenswood Hospital +1-3 1931 Wilson Ave., Chicago 40	NPCorp	207	8,227	....	71	12	No	100FM	7 Rotating General
Resurrection Hospital 3 7435 W. Talcott Ave., Chicago 31	Church	188	8,691	Req	61	12	No	250FM	9 Rotating General
Roseland Community Hospital 3 45 W. 111th St., Chicago 28	NPCorp	101	4,161	Req	33	12	No	175FM	5 Rotating General
St. Bernard's Hospital 1-3 6337 S. Harvard Ave., Chicago 21	Church	189	5,176	None	32	12	No	150-200FM	8 Rotating General
St. Elizabeth Hospital +3 1431 N. Claremont Ave., Chicago 22	Church	273	10,169	None	32	12	No	200FM	10 Rotating General
St. Joseph Hospital +1-3-X27 2100 N. Burling St., Chicago 14	Church	197	6,566	Req	58	12	No	200FM	8 Rotating General
St. Luke's Hospital +1-3-X29 1439 S. Michigan Ave., Chicago 5	NPCorp	527	14,066	Req	73	12	No	100FM	32 Rotating General
St. Mary of Nazareth Hospital +1-3 1120 N. Leavitt St., Chicago 22	Church	268	8,614	Req	30	12	No	200FM	10 Rotating General
South Chicago Community Hospital 1-3 2320 E. 93rd St., Chicago 17	NPCorp	250	10,215	Req	31	12	No	150FM	8 Rotating General
South Shore Hospital +1-3 8015 S. Luella Ave., Chicago 17	NPCorp	175	6,782	Req	30	12	No	150FM	7 Rotating General
Swedish Covenant Hospital +1-3 5145 N. California Ave., Chicago 25	Church	225	6,801	Req	31	12	No	150FM	8 Rotating General
University of Chicago Clinics +1-3-4-X28 950 E. 59th St., Chicago 37	NPCorp	681	16,639	Req	75	12	No	150PM	36 Rotating General 3 Straight Pediatrics
University of Illinois Research and Educational Hospitals +1-4-X29 840 S. Wood St., Chicago 12	State	612	11,325	Req	84	12	No	50FM	36 Rotating General
Walther Memorial Hospital 1-3 1116 N. Kedzie Ave., Chicago 51	Church	172	7,267	Req	36	12	No	100FM	7 Rotating General
Woodlawn Hospital +1-3 6060 Drexel Ave., Chicago 37	NPCorp	150	5,025	Req	65	12	No	100FM	6 Rotating General
Decatur and Macon County Hospital + 2300 N. Edward St., Decatur	NPCorp	330	11,715	Req	39	12	No	225FM	8 Rotating General
St. Mary's Hospital 3 129 N. 8th St., East St. Louis	Church	320	11,173	....	27	12	No	150FM	12 Rotating General
Memorial Hospital of Du Page County 1-3 120 Avon Rd., Elmhurst	NPCorp	193	10,448	Req	47	12	No	200FM	9 Rotating General
Evanston Hospital +1-3-X26 2650 Ridge Ave., Evanston	NPCorp	325	11,393	Req	76	12	No	200	18 Rotating General
St. Francis Hospital +1 355 Ridge Ave., Evanston	Church	389	15,083	Req	62	12	No	150FM	12 Rotating General
Little Company of Mary Hospital +1-3 2800 W. 95th St., Evergreen Park 42	Church	467	19,725	Req	36	12	No	150FM	24 Rotating General
Oak Park Hospital 1-3 525 Wisconsin Ave., Oak Park	Church	242	8,743	Req	44	12	No	150FM	10 Rotating General
West Suburban Hospital +3 518 N. Austin Blvd., Oak Park	NPCorp	329	12,298	Req	51	12	No	200FM	12 Rotating General
Methodist Hospital of Central Illinois +3 221 N. Glen Oak Ave., Peoria	Church	347	13,267	Req	49	12	No	125FM	16 Rotating General
St. Francis Hospital +1 530 N. Glen Oak Ave., Peoria	Church	616	19,183	Req	53	12	No	200FM	18 Rotating General
Rockford Memorial Hospital +1-3 2400 N. Rockton Ave., Rockford	NPCorp	237	11,521	Req	68	12	No	150FM	8 Rotating General
St. Anthony Hospital +1-3 1401 E. State St., Rockford	Church	210	9,073	....	14	12	No	150FM	6 Rotating General
Swedish-American Hospital +1 1316 Charles St., Rockford	NPCorp	200	9,170	Req	63	12	No	150FM	6 Rotating General
INDIANA—Hospitals, 17; Internships, 202									
St. Catherine Hospital 1-3 4321 Fir St., East Chicago	Church	318	11,344	....	47	12	No	200FM	7 Rotating General
Protestant Deaconess Hospital 1 600 Mary St., Evansville 10	Church	278	12,404	Req	29	12	No	300PM	4 Rotating General
St. Mary's Hospital 1-3 3700 Washington Ave., Evansville 15	Church	354	8,939	Req	43	12	No	250FM	8 Rotating General
Lutheran Hospital 1 3024 Fairfield Ave., Fort Wayne 6	Church	280	8,298	Req	36	12	No	200FM	6 Rotating General
Parkview Memorial Hospital 1-3 2200 Randallia Dr., Fort Wayne 3	Church	242	9,748	Req	34	12	No	200-250FM	8 Rotating General
St. Joseph's Hospital +1-3 730 W. Berry St., Fort Wayne 2	Church	271	9,625	Req	35	12	No	200-250FM	6 Rotating General
Methodist Hospital +1 1600 W. 6th Ave., Gary	Church	242	12,526	Req	41	12	No	175FM	10 Rotating General
St. Mary Mercy Hospital 1-3 540 Tyler St., Gary	Church	282	11,416	Req	47	12	No	200FM	8 Rotating General
St. Margaret Hospital + [illegible] Hammond	Church	350	14,538	None	36	12	No	300FM	12 Rotating General
[illegible] Hospital +1-4-X30 960 Loc[illegible]dianapolis 7	County	689	12,262	Req	47	12	No	150PM	42 Rotating General
Indiana University Medical Center +1-4-X30 1100 W. Michigan St., Indianapolis 7	State	549	11,617	None	69	12	153	115PM	26 Rotating General 4 Straight Surgery
Methodist Hospital +1 1604 N. Capitol Ave., Indianapolis 7	Church	666	27,256	Req	43	12	No	215PM	20 Rotating General
St. Vincent's Hospital +1-3 120 W. Fall Creek Pkwy., Indianapolis 7	Church	300	12,726	Req	41	12	No	210PM	14 Rotating General
St. Elizabeth Hospital +1-3 1021 N. 14th St., Lafayette	Church	285	10,649	Req	29	12	No	200FM	4 Rotating General
Ball Memorial Hospital +1 2101 University Ave., Muncie	NPCorp	254	11,640	Req	43	12	No	250PM	8 Rotating General

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INDIANA—Continued										
emorial Hospital +[1-3] 604 N. Main St., South Bend 1	NPCorp	225	9,927	Req	47	12	No	250FM	7 Rotating General	19311
Joseph's Hospital [1-3] 401 N. Notre Dame Ave., South Bend 22	Church	175	7,709	Req	40	12	154	250FM	8 Rotating General	19411
IOWA—Hospitals, 9; Internships, 84										
ercy Hospital [1-3] 835 6th Ave. S.E., Cedar Rapids	Church	222	8,994	Req	45	12	No	200FM	6 Rotating General	19511
t. Luke's Methodist Hospital +[1-3] 1026 A Ave., N.E., Cedar Rapids	Church	300	12,880	Req	51	12	No	250FM	10 Rotating General	19711
ercy Hospital [1-3]-X47 420 E. Washington Ave., Council Bluffs	Church	188	6,524	Req	30	12	No	200FM	4 Rotating General	19811
roadlawns, Polk County Hospital +[1-3] 18th and Hickman Rd., Des Moines 14	County	237	4,540	Req	57	12	No	150FM	12 Rotating General	19911
wa Lutheran Hospital [1-3] 716 Parnell Ave., Des Moines 16	Church	200	8,229	Req	35	12	No	175FM	8 Rotating General	20011
wa Methodist Hospital +[1-3] 1200 Pleasant St., Des Moines 14	Church	396	16,244	Req	62	12	No	175FM	10 Rotating General	20111
ercy Hospital +[1-3] 4th and Ascension Sts., Des Moines 14	Church	200	10,427	Req	59	12	155	175FM	10 Rotating General	20211
ercy Hospital +[1-3] 214 N. Van Buren St., Iowa City	Church	190	6,043	....	35	12	No	150FM	4 Rotating General	86111
tate University of Iowa Hospitals +[1-3-4]-X31 Newton Rd., Iowa City	State	900	21,045	Req	72	12	No	125FM	20 Rotating General	20311
KANSAS—Hospitals, 6; Internships, 95										
ethany Hospital [1-3] 51 N. 12th St., Kansas City 7	Church	159	7,095	None	42	12	No	150FM	8 Rotating General	20511
t. Margaret's Hospital + 8th St. and Vermont Ave., Kansas City 8	Church	215	5,534	....	45	12	No	225FM	6 Rotating General	20711
niversity of Kansas Medical Center +[1-3-4]-X32 39th and Rainbow Blvd., Kansas City 3	State	546	14,667	....	72	12	No	40PM	12 Rotating General 1 Straight Medicine 1 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology 5 Mixed (Med.-Surg.-Ped.) 1 Mixed (Path.-Med.) 1 Mixed (Path.-Surg.)	20811 20832 20833 20834 20836 20823 20827 20837
t. Francis Hospital +[1-3] 928 N. Emporia Ave., Wichita 5	Church	505	20,715	....	34	12	No	225FM	24 Rotating General	20711
esley Hospital +[1-3] 550 N. Hillside Ave., Wichita 6	Church	375	15,728	Req	38	12	156	220FM	16 Rotating General	21011
ichita-St. Joseph Hospital +[1-3] 3400 Grand Ave., Wichita 17	Church	375	14,255	Req	42	12	157	200FM	16 Rotating General	21111
KENTUCKY—Hospitals, 9; Internships, 106										
St. Elizabeth Hospital +[1-3] 21st and Eastern Ave., Covington	Church	364	12,681	Req	34	12	No	200FM	12 Rotating General	21211
Good Samaritan Hospital +[1-3] 310 S. Limestone St., Lexington	Church	307	9,472	Req	32	12	No	150FM	12 Rotating General	21411
St. Joseph Hospital +[1-3] 544 W. 2nd St., Lexington	Church	243	8,969	Req	34	12	No	200FM	8 Rotating General	21511
*Kentucky Baptist Hospital [3] 810 Barret Ave., Louisville 4	Church	345	15,402	Req	26	12	158	200FM	10 Rotating General	21611
*Louisville General Hospital +[1-3-4]-X33 323 E. Chestnut St., Louisville 2	CyCo	386	10,021	Req	51	12	159	70FM	22 Rotating General 4 Straight Medicine 8 Straight Pediatrics	21711 21732 21734
Norton Memorial Infirmary +[1-3] 231 W. Oak St., Louisville 3	NPCorp	291	11,739	....	46	12	160	200FM	6 Rotating General	21811
St. Anthony Hospital +[1-3] 1313 St. Anthony Pl., Louisville 4	Church	210	10,728	Req	32	12	161	200FM	5 Rotating General	21911
*St. Joseph Infirmary +[1-3] 735 Eastern Pkwy., Louisville 17	Church	436	19,999	Req	36	12	No	200FM	15 Rotating General	22011
SS. Mary and Elizabeth Hospital [3] 1357 S. 12th St., Louisville 10	Church	175	9,607	Req	33	12	160	200FM	4 Rotating General	22111
LOUISIANA—Hospitals, 9; Internships, 236										
Charity Hospital of Louisiana +[1-3-4]-X34-35 1532 Tulane Ave., New Orleans 12	State	2,874	61,807	Req	65	12	No	75FM	130 Rotating General	22411
Hotel Dieu +[1-3] 2004 Tulane Ave., New Orleans 16	Church	292	13,311	Req	38	12	No	150FM	12 Rotating General	22511
Mercy Hospital [3] 301 N. Jefferson Davis Pkwy., New Orleans 19	Church	191	10,418	Req	42	12	No	175FM	9 Rotating General	22611
Ochsner Foundation Hospital +[1-3] 1516 Jefferson Hwy., New Orleans 21	NPCorp	244	7,424	....	83	12	No	125FM	4 Straight Medicine	16932
Southern Baptist Hospital +[1-3] 2700 Napoleon Ave., New Orleans 15	Church	419	20,481	Req	51	12	No	175	20 Rotating General	22811
Touro Infirmary +[1-3]-X35 3516 Prytania St., New Orleans 15	NPCorp	457	21,313	Req	57	12	No	100FM	20 Rotating General	22911
Confederate Memorial Medical Center +[1-4] 1541 Kings Highway, Shreveport	State	1,000	22,573	Req	40	12	No	100FM	36 Rotating General	23211
North Louisiana Sanitarium [1] 1130 Louisiana Ave., Shreveport 7	Corp	130	5,267	Req	71	12	162	225FM	3 Rotating General	23011
T. E. Schumpert Memorial Sanitarium [1] 941 Margaret Pl., Shreveport 15	Church	107	6,868	None	34	12	No	250	2 Rot. (Surg. Major)	23113
MAINE—Hospitals, 4; Internships, 29										
Eastern Maine General Hospital +[1] 489 State St., Bangor	NPCorp	297	9,509	Req	47	12	No	75FM	8 Rotating General	23311
*Central Maine General Hospital +[1-3] 300 Main St., Lewiston	NPCorp	220	7,413	Req	51	12	No	190FM	6 Rotating General	.....
St. Mary's General Hospital [1-3] 318 Sabattus St., Lewiston	Church	150	4,621	Req	29	12	No	125FM	3 Rotating General	23511
Maine Medical Center +[1-3] 22 Bramhall St., Portland 4	NPCorp	400	10,155	Req	43	12	No	100FM	12 Rotating General	23611

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MARYLAND—Hospitals, 19; Internships, 302									
Baltimore City Hospital +1-3-4-X36-37 4940 Eastern Ave., Baltimore 24	City	1,150	12,649	Req	66	12	163	50FM	12 Rotating General 9 Straight Medicine 6 Straight Surgery 6 Straight Pediatrics 2 Straight Pathology 2 Mixed (Med.-Ped) 2 Mixed (Ped.-Med)
Bon Secours Hospital +3 2025 W. Fayette St., Baltimore 23	Church	169	7,351	Req	37	12	No	225FM	6 Rotating General
Church Home and Hospital +1-3 Broadway and Fairmount Ave., Baltimore 31	Church	183	5,834	Req	63	12	104	175FM	8 Rotating General 1 Straight Medicine
Franklin Square Hospital +1-3 110 N. Calhoun St., Baltimore 23	NPCorp	175	5,796	Req	58	12	164	200FM	12 Rotating General
Hospital for Women +1-3 Lafayette Ave. and John St., Baltimore 17	NPCorp	151	6,990	Req	65	12	No	200FM	5 Mixed (Med.-Ob.-Gyn)
Johns Hopkins Hospital +1-3-4-X36 601 N. Broadway, Baltimore 5	NPCorp	997	23,010	Req	68	12	165	25FM	15 Straight Medicine 12 Straight Medicine (Private Wards) 21 Straight Surgery 12 Straight Pediatrics 3 Straight Pathology
Lutheran Hospital +1-3-4 730 Ashburton St., Baltimore 16	Church	191	7,551	Req	39	12	104	200FM	7 Rotating General
Maryland General Hospital +1-3-x37 Linden Ave. and Madison St., Baltimore 1	Church	390	7,420	Req	61	12	No	200FM	12 Rotating General
Mercy Hospital +1-3-4-x37 Calvert and Saratoga Sts., Baltimore 2	Church	300	11,424	Req	48	12	No	225PM	16 Rotating General
Provident Hospital and Free Dispensary +3-4 1514 Division St., Baltimore 17	NPCorp	137	4,378	Req	39	12	No	175FM	9 Rotating General
St. Agnes Hospital +1-3 900 Caton Ave., Baltimore 29	Church	217	8,364	Req	53	12	104	250PM	9 Rotating General
St. Joseph's Hospital +3 1400 N. Caroline St., Baltimore 13	Church	250	8,086	Req	49	12	104	200FM	8 Rotating General
Sinai Hospital +1-3-4-x36 1711 E. Monument St., Baltimore 5	NPCorp	312	12,765	Req	50	12	No	100FM	16 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics
South Baltimore General Hospital +1-3-x37 1213 Light St., Baltimore 30	NPCorp	184	6,418	....	32	12	No	140FM	8 Rotating General
Union Memorial Hospital +1 33rd and Calvert Sts., Baltimore 18	NPCorp	312	10,555	Req	44	12	No	200FM	16 Rotating General
University Hospital +1-3-4-X37 Redwood and Greene Sts., Baltimore 1	State	604	14,767	Req	54	12	No	50FM	16 Rotating General 5 Straight Medicine 2 Straight Surgery 3 Straight Pediatrics 4 Mixed (Surg.-Ob.-Gyn.)
*Suburban Hospital +1-3 8600 Old Georgetown Rd., Bethesda 14	NPCorp	200	6,687	Req	56	12	166	100FM	8 Rotating General
Prince George's General Hospital +1-3 Cheverly	County	235	11,524	Req	36	12	No	150FM	14 Rotating General
Washington County Hospital +1-3 King and Antietam Sts., Hagerstown	NPCorp	268	10,806	Req	25	12	No	200FM	10 Rotating General
MASSACHUSETTS—Hospitals, 34; Internships, 386									
Beverly Hospital +1-3 Herrick and Heather Sts., Beverly	NPCorp	186	6,610	Req	64	12	No	100FM	6 Rotating General
Beth Israel Hospital +1-3-4-X39-40 330 Brookline Ave., Boston 15	NPCorp	324	11,816	Req	52	12	167	42FM	10 Straight Medicine 6 Straight Surgery
Boston City Hospital +1-3-4-X-38-39-40 818 Harrison Ave., Boston 18 Chrm. Com. Internship Exams	City I and III II and IV V and VI I III V	1,570 Medical Tufts Medical Harvard Medical Boston Univ. Surgical Tufts Surgical Boston Univ. Surgical Harvard Straight Specialties, Boston Univ. Pathology	30,038	Req	54	12	No	92FM	16 Straight Medicine 16 Straight Medicine 16 Straight Medicine 8 Straight Surgery 8 Straight Surgery 6 Straight Surgery 4 Straight Pediatrics 5 Straight Pathology
Carney Hospital + 2100 Dorchester Ave., Boston 21	Church	294	9,534	Req	38	12	168	125FM	12 Rotating General
Children's Medical Center +1-3-4X39 300 Longwood Ave., Boston 15	NPCorp	411	8,231	Req	86	12	169	FM	5 Straight Pediatrics 2 Straight Pathology
Massachusetts General Hospital +1-3-4-X39 Fruit St., Boston 14	NPCorp	927	21,789	Req	62	12	170	25FM	12 Straight Medicine 8 Straight Surgery 7 Straight Pediatrics 2 Straight Pathology
Massachusetts Memorial Hospitals +1-3-X38 750 Harrison Ave., Boston 18	NPCorp	316	6,907	Req	58	12	No	75FM	10 Straight Medicine 6 Straight Surgery 1 Straight Pathology
New England Center Hospital +1-3-X40 Harrison Ave. and Bennet St., Boston 11	NPCorp	208	6,230	Req	67	12	171	83FM	10 Straight Medicine 8 Straight Surgery
New England Hospital +3 Dimock St. and Columbus Ave., Boston 19	NPCorp	150	4,104	Req	33	12	172	50FM	4 Rotating General
Peter Bent Brigham Hospital +1-3-4-X39 721 Huntington Ave., Boston 15	NPCorp	280	6,130	Req	73	12	173	25FM	13 Straight Medicine 6 Straight Surgery
St. Elizabeth's Hospital +1-3-X40 736 Cambridge St., Boston 35	Church	400	12,989	Req	49	12	No	110FM	14 Rotating General
Brockton Hospital 1-3 680 Centre St., Brockton 11	NPCorp	191	7,287	Req	40	12	No	250FM	4 Rotating General
Cambridge City Hospital +1-3-x40 1493 Cambridge St., Cambridge 39	City	246	6,447	Req	52	12	No	140FM	12 Rotating General
Mount Auburn Hospital +1-3-x39 330 Mount Auburn St., Cambridge 38	NPCorp	248	7,796	Req	56	12	174	100FM	6 Rotating General
Truesdale Hospital +1-3 1820 Highland Ave., Fall River	NPCorp	152	4,402	Req	47	12	175	100FM	8 Rotating General
Union Hospital 1-3 300 Hanover St., Fall River	NPCorp	184	5,027	Req	29	12	No	100-150FM	6 Rotating General
Holyoke Hospital 1-3-4 575 Beech St., Holyoke	NPCorp	194	6,205	Req	41	12	No	100FM	2 Rotating General 2 Mixed (Med.-Surg.)
Lawrence General Hospital +1-3 1 Garden St., Lawrence	NPCorp	188	7,010	Req	62	12	No	100FM	4 Rotating General
Lowell General Hospital +1-3 295 Varnum Ave., Lowell	NPCorp	210	6,410	Req	41	12	No	100-150FM	2 Rotating General

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MASSACHUSETTS—Continued										
John's Hospital ^{3} 11 Bartlett St., Lowell	Church	183	7,025	Req	41	12	No	100FM	4 Rotating General	27611
Joseph's Hospital ^{3} 830 Merrimack St., Lowell	Church	190	7,232	Req	30	12	No	125FM	4 Rotating General	27711
nn Hospital $^{+1-3}$ 212 Boston St., Lynn	NPCorp	282	9,896	Req	39	12	No	100FM	10 Rotating General	27811
Luke's Hospital $^{+1-3}$ 101 Page St., New Bedford	NPCorp	338	11,687	Req	27	12	No	150FM	10 Rotating General	27911
wton-Wellesley Hospital $^{+1-3}$ 2014 Washington St., Newton Lower Falls 62	NPCorp	235	7,818	Req	51	12	No	165FM	6 Rotating General	28011
Luke's Hospital $^{1-3}$ 379 East St., Pittsfield	Church	150	4,914	Req	46	12	No	150FM	3 Rotating General	28211
incy City Hospital $^{+1-3-4}$ 114 Whitwell St., Quincy 69	City	253	9,949	Req	48	12	No	137FM	12 Rotating General	28311
lem Hospital $^{+1}$ 81 Highland Ave., Salem	NPCorp	243	7,986	Req	35	12	No	200-250FM	6 Rotating General	28411
rcy Hospital $^{1-3}$ 233 Carew St., Springfield 4	Church	340	12,209	Req	29	12	No	200FM	6 Rotating General	28511
ringfield Hospital $^{+1-3}$ 759 Chestnut St., Springfield 7	NPCorp	362	10,727	Req	52	12	176	75FM	8 Rotating General	28611
esson Memorial Hospital $^{1-3}$ 140 High St., Springfield 5	NPCorp	173	6,887	None	39	12	176	100FM	4 Rotating General	28711
altham Hospital $^{1-3-x40}$ Hope Ave., Waltham 54	NPCorp	147	5,642	Req	47	12	No	200FM	4 Rotating General	28811
morial Hospital $^{+1-3-4}$ 119 Belmont St., Worcester 5	NPCorp	290	9,928	Req	63	12	No	100-140FM	8 Rotating General	28911
Vincent Hospital $^{+1-3}$ 25 Winthrop St., Worcester 10	Church	557	14,392	Req	46	12	No	150FM	16 Rotating General	29011
orcester City Hospital $^{+1-3-4}$ 71 Jacques Ave., Worcester 9	City	446	10,890	Req	46	12	No	115FM	18 Rotating General	29111
MICHIGAN—Hospitals, 38; Internships, 638										
Joseph Mercy Hospital $^{+1-3-x41}$ 326 N. Ingalls St., Ann Arbor	Church	445	12,425	Req	50	12	No	250FM	14 Rotating General	29211
iversity Hospital $^{+1-3-4-X41}$ 1313 E. Ann St., Ann Arbor	State	1,035	20,578	....	77	12	177	125	3 Rot. (Anes. Major) 2 Rot. (Derm. Major) 12 Rot. (Gen. Prac. Maj.) 8 Rot. (Med. Major) 2 Rot. (Neuro. Major) 3 Rot. (Ob-Gyn. Major) 1 Rot. (Ophth. Major) 1 Rot. (Otol. Major) 2 Rot. (Path. Major) 3 Rot. (Ped. Major) 2 Rot. (Phys. Med. & Rehab. Major) 14 Rot. (Surg. Major)	29377 29375 29381 29312 29374 29315 29379 29378 29386 29314 29380 29313
ella Y. Post Montgomery Hospital $^{+1}$ 9 Emmett St., Battle Creek	Church	187	8,064	Req	36	12	No	250FM	5 Rotating General	29411
lercy Hospital $^{1-3}$ 960 Agard St., Benton Harbor	NPCorp	161	6,321	Req	51	12	No	225FM	6 Rotating General	96011
akwood Hospital $^{+1}$ 18101 Oakwood Blvd., Dearborn 8	NPCorp	232	12,226	Req	56	12	178	200FM	10 Rotating General	94611
etroit Memorial Hospital $^{+1-3}$ 1420 St. Antoine St., Detroit 26	NPCorp	322	10,710	Req	47	12	179	250FM	12 Rotating General	29611
vangelical Deaconess Hospital $^{+1-3}$ 3245 E. Jefferson Ave., Detroit 7	Church	185	7,934	Req	44	12	180	242PM	8 Rotating General	29711
race Hospital $^{+1-3-x42}$ 4160 John R. St., Detroit 1	NPCorp	741	28,778	Req	45	12	179	250FM	24 Rotating General	29811
arper Hospital $^{+1-3}$ 3825 Brush St., Detroit 1	NPCorp	616	23,329	Req	47	12	179	200	36 Rotating General	29911
enry Ford Hospital $^{+1-3}$ 2799 W. Grand Blvd., Detroit 2	NPCorp	806	24,291	....	70	12	No	200	44 Rotating General	30011
ount Carmel Mercy Hospital $^{+1-3-4}$ 6071 W. Outer Dr., Detroit 35	Church	560	24,221	Req	49	12	No	250FM	24 Rotating General	30211
rovidence Hospital $^{+1}$ 2500 W. Grand Blvd., Detroit 8	Church	400	14,341	Req	52	12	181	250PM	12 Rotating General	30311
eceiving Hospital $^{+1-X42}$ 1326 St. Antoine St., Detroit 26	City	700	22,670	Req	58	12	182	240PM	66 Rotating General	29511
St. John Hospital $^{+1-3}$ 22101 Moross Rd., Detroit 36	NPCorp	272	12,206	Req	58	12	No	225FM	12 Rotating General	91511
St. Joseph Mercy Hospital $^{+1}$ 2200 E. Grand Blvd., Detroit 11	Church	225	9,315	Req	49	12	183	265FM	7 Rotating General	30411
inai Hospital $^{+1-4}$ 6767 W. Outer Dr., Detroit 35	NPCorp	230	9,549	Req	57	12	179	225PM	15 Rotating General	92511
Woman's Hospital $^{+1-3}$ 432 E. Hancock Ave., Detroit 1	NPCorp	384	12,268	Req	46	12	179	450	15 Rotating General	30511
Wayne County Gen. Hosp. and Infirmary $^{+1-3-x42}$ Eloise	County	3,454	8,702	Req	32	12	184	281FM	36 Rotating General	30611
Hurley Hospital $^{+1-3}$ 6th Ave. and Begole St., Flint 2	City	600	22,775	None	61	12	No	250PM	38 Rotating General	30711
McLaren General Hospital $^{+1}$ 401 Ballenger Hwy., Flint 3	NPCorp	256	11,396	Req	59	12	No	250PM	12 Rotating General	80611
St. Joseph Hospital $^{+1-3}$ 302 Kensington Ave., Flint 2	Church	300	15,410	Req	58	12	185	275PM	14 Rotating General	30811
Blodgett Memorial Hospital $^{+1-3}$ 1840 Wealthy St. S.E., Grand Rapids 6	NPCorp	318	12,276	Req	68	12	186	225FM	16 Rotating General	30911
Butterworth Hospital $^{+1-3}$ 300 Bostwick Ave. N.E., Grand Rapids 3	NPCorp	419	16,609	Req	54	12	No	275PM	16 Rotating General	31011
St. Mary's Hospital $^{+1-3}$ 250 Cherry St. S.E., Grand Rapids 3	Church	341	15,681	Req	48	12	No	225FM	14 Rotating General	31111
Bon Secours Hospital $^{+3}$ 468 Cadieux Rd., Grosse Pointe 30	Church	157	7,020	Req	47	12	187	315FM	6 Rotating General	90611
Highland Park General Hospital $^{+1}$ 309 Glendale Ave., Highland Park 3	City	331	11,000	Req	58	12	183	275FM	14 Rotating General	31211
Borgess Hospital $^{+1-3}$ 1521 Gull Rd., Kalamazoo 62	NPCorp	267	9,105	....	42	12	No	250FM	6 Rotating General	31311
Bronson Methodist Hospital $^{+1}$ 252 E. Lovell St., Kalamazoo 8	Church	250	9,286	Req	56	12	No	240PM	6 Rotating General	31411
Edward W. Sparrow Hospital $^{+1-3}$ 1215 E. Michigan Ave., Lansing 12	NPCorp	296	14,583	Req	58	12	188	350	16 Rotating General	31511
St. Lawrence Hospital $^{+1-3}$ 1210 W. Saginaw St., Lansing 15	Church	275	12,415	Req	62	12	No	300FM	12 Rotating General	31611

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MICHIGAN—Continued										
Midland Hospital $^{1-3}$ 1005 Orchard Dr., Midland	NPCorp	160	7,220	Req	59	12	No	250FM	6 Rotating General	
Pontiac General Hospital $^{*1-3}$ 461 W. Huron St., Pontiac 18	City	198	12,821	Req	51	12	189	300PM	13 Rotating General	
St. Joseph Mercy Hospital $^{*1-3}$ 900 Woodward Ave., Pontiac 19	Church	310	15,463	Req	16	12	No	250FM	12 Rotating General	
William Beaumont Hospital $^{*1-3}$ 3601 W. 13 Mile Rd., Royal Oak	NPCorp	238	11,753	Req	66	12	279	250PM	12 Rotating General	
Saginaw General Hospital $^{*1-3}$ 1447 N. Harrison St., Saginaw	NPCorp	228	9,843	Req	65	12	190	295	6 Rotating General	
St. Luke's Hospital $^{*1-3}$ 705 Cooper St., Saginaw	Church	212	7,222	Req	66	12	No	250FM	8 Rotating General	
St. Mary's Hospital * 830 S. Jefferson Ave., Saginaw	Church	175	8,098	Req	51	12	No	310PM	6 Rotating General	
James Decker Munson Hospital ^{1} 6th St., Traverse City	NPCorp	208	7,436	....	39	12	No	275PM	6 Rotating General	
MINNESOTA—Hospitals, 15; Internships, 229										
St. Luke's Hospital $^{*1-3}$ 915 E. 1st St., Duluth 11	NPCorp	355	14,167	Req	73	12	191	125FM	18 Rotating General	
St. Mary's Hospital $^{*1-3}$ 420 E. 3rd St., Duluth 11	Church	100	11,240	Req	68	12	191	75FM	12 Rotating General	
Asbury Methodist Hospital $^{*1-3}$ 916 E. 15th St., Minneapolis 4	Church	168	7,203	Req	56	12	No	150FM	8 Rotating General	
Minneapolis General Hospital $^{*1-3}$-X43 619 S. 5th St., Minneapolis 15	City	191	7,462	Req	69	12	No	50FM	39 Rotating General	
Mount Sinai Hospital $^{*1-4}$ 737 E. 22nd St., Minneapolis 4	NPCorp	221	9,710	Req	52	12	192	100FM	12 Rotating General	
Northwestern Hospital $^{*1-3}$ 810 E. 27th St., Minneapolis 7	NPCorp	261	11,613	....	71	12	No	175FM	8 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics	
St. Barnabas Hospital $^{*1-3}$ 900 S. 7th St., Minneapolis 4	Church	274	10,916	....	61	12	193	195PM	10 Rotating General	
St. Mary's Hospital $^{*1-3}$ 2500 S. 6th St., Minneapolis 6	Church	316	15,172	Req	72	12	192	150FM	10 Rotating General	
Swedish Hospital $^{*1-3}$ 914 S. 8th St., Minneapolis 4	NPCorp	420	18,177	None	42	12	143	150FM	8 Rotating General	
University of Minnesota Hospitals $^{*1-3-4}$-X43 412 Union St., S.E., Minneapolis 14	State	634	13,229	Req	83	12	194	50FM	12 Rotating General 8 Straight Medicine 10 Straight Surgery 10 Straight Pediatrics	
Ancker Hospital $^{*1-3}$-X43 495 Jefferson Ave., St. Paul 1	CyCo	850	8,562	Req	62	12	No	75FM	26 Rotating General	
Bethesda Hospital $^{1-3}$ 570 Capitol Blvd., St. Paul 1	Church	172	9,247	Req	46	12	195	200FM	6 Rotating General	
Charles T. Miller Hospital $^{*1-3}$ 125 W. College Ave., St. Paul 2	NPCorp	360	12,282	Req	58	12	196	100FM	13 Rotating General	
St. Joseph's Hospital $^{*1-3}$ 69 W. Exchange St., St. Paul 2	Church	284	12,287	Req	58	12	No	100FM	12 Rotating General	
St. Luke's Hospital $^{1-3}$ 287 N. Smith Ave., St. Paul 2	NPCorp	208	6,747	Req	47	12	197	150FM	4 Rotating General	
MISSISSIPPI—Hospitals, 3; Internships, 40										
Mississippi Baptist Hospital $^{*1-3}$ 1190 N. State St., Jackson	Church	314	11,770	Req	27	12	No	100FM	12 Rotating General	
University Hospital ^{*1}-X44 2500 N. State St., Jackson	State	355	5,698	Req	57	12	No	200	24 Rotating General	
Mercy Hospital Street Memorial $^{*1-3}$ 911 Crawford St., Vicksburg	Church	112	1,035	Req	30	12	198	100FM	4 Rotating General	
MISSOURI—Hospitals, 24; Internships, 424										
St. Louis County Hospital $^{*1-3}$ 601 S. Brentwood Blvd., Clayton 5	County	200	1,059	Req	62	12	No	150FM	10 Rotating General	
Kansas City General Hospital No. 1 ^{*1}-X32 24th and Cherry Sts., Kansas City 8	City	418	7,191	Req	59	12	No	150FM	30 Rotating General	
Menorah Medical Center $^{*1-3}$-X32 4919 Rockhill Rd., Kansas City 10	NPCorp	329	10,421	Req	58	12	No	150FM	16 Rotating General	
Research Hospital $^{*1-3}$ 2300 Holmes St., Kansas City 8	NPCorp	258	7,847	Req	57	12	199	175FM	10 Rotating General	
St. Joseph Hospital ^{*3} 2510 E. Linwood Blvd., Kansas City 28	Church	321	13,010	Req	65	12	No	200FM	16 Rotating General 3 Straight Surgery	
St. Luke's Hospital $^{*1-3}$ 4400 J. C. Nichols Pkwy., Kansas City 11	Church	459	14,755	Req	67	12	199	200FM	18 Rotating General	
St. Mary's Hospital $^{*1-3}$ 101 Memorial Dr., Kansas City 8	Church	350	12,612	None	65	12	199	225FM	12 Rotating General	
Trinity Lutheran Hospital $^{1-3}$ 3601 Wyandotte St., Kansas City 8	Church	203	6,283	Req	53	12	199	200FM	8 Rotating General	
Missouri Methodist Hospital ^{*1} 8th and Faraon Sts., St. Joseph	Church	300	8,874	Req	32	12	No	175FM	4 Rotating General	
St. Joseph's Hospital $^{1-3}$ 923 Powell St., St. Joseph	Church	152	6,169	Req	41	12	No	200FM	4 Rotating General	
Barnes Hospital $^{*1-3}$-X46 600 S. Kingshighway Blvd., St. Louis 10	NPCorp	919	27,191	Req	76	12	No	10FM	10 Str. Med. (Ward) 14 Str. Med. (Private) 14 Straight Surgery 5 Straight Pathology	
Christian Hospital $^{1-3}$ 4411 N. Newstead Ave., St. Louis 15	Church	135	5,062	Req	38	12	No	175FM	5 Rotating General	
De Paul Hospital $^{*1-3}$ 2415 N. Kingshighway Blvd., St. Louis 13	Church	350	12,692	Req	43	12	No	150FM	12 Rotating General	
Evangelical Deaconess Hospital $^{*1-3}$ 6150 Oakland Ave., St. Louis 10	Church	388	8,407	Req	39	12	No	150FM	10 Rotating General	
Homer G. Phillips Hospital $^{*1-3-4}$-X46 2601 N. Whittier St., St. Louis 13	City	654	17,131	Req	44	12	No	162	40 Rotating General	
Jewish Hospital $^{*1-3-4}$ 216 S. Kingshighway Blvd., St. Louis 10	NPCorp	295	9,774	Req	49	12	No	75FM	16 Rotating General	
Lutheran Hospital $^{*1-3}$ 2639 Miami St., St. Louis 18	Church	307	7,434	Req	43	12	No	150FM	12 Mixed (Med.-Surg.-Ob.-Gyn.)	
Missouri Baptist Hospital $^{*1-3}$ 919 N. Taylor Ave., St. Louis 8	Church	486	11,668	Req	41	12	No	125FM	12 Rotating General 2 Rot. (Med. Major) 2 Rot. (Surg. Major)	
St. Anthony's Hospital $^{*1-3}$-X45 3520 Chippewa St., St. Louis 18	Church	250	8,996	Req	28	12	200	100FM	7 Rotating General	

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MISSOURI—Continued										
John's Hospital +$^{1-3}$-x45 537 S. Euclid Ave., St. Louis 10	Church	359	11,503	Req	47	12	201	150FM	18 Rotating General	36211
Louis Children's Hospital +^{1}-X46 500 S. Kingshighway Blvd., St. Louis 10	NPCorp	142	4,050	Req	79	12	202	10FM	8 Straight Pediatrics	86934
Louis City Hospital +$^{1-3}$-X45-46 1515 Lafayette Ave., St. Louis 4	City	1,059	14,781	Req	61	12	No	149PM	60 Rotating General	36311
Luke's Hospital +^{1} 5535 Delmar Blvd., St. Louis 12	Church	209	7,181	Req	62	12	201	200FM	12 Rotating General	36411
Mary's Group of Hospitals +^{1}-X45 1402 S. Grand Blvd., St. Louis 4	Church	711	19,907	Req	61	12	201	85FM	16 Rotating General 8 Straight Medicine 8 Straight Surgery 2 Straight Pediatrics	36511 36532 36533 36534
MONTANA—Hospitals 3; Internships, 10										
tte Community Memorial Hospital +$^{1-3}$ 400 S. Clark St., Butte	NPCorp	142	5,147	Req	35	12	No	150FM	2 Rotating General	94711
James Hospital ^{3} Silver and Idaho Sts., Butte	Church	160	5,482	Req	39	12	No	150FM	4 Rotating General	36611
ontana Deaconess Hospital +$^{1-3}$ 1109 6th Ave., N., Great Falls	Church	198	5,436	Req	41	12	No	150PM	4 Rotating General	36711
NEBRASKA—Hospitals, 9; Internships, 79										
yan Memorial Hospital $^{1-3}$-x48 4848 Sumner St., Lincoln 6	Church	120	4,538	Req	56	12	No	300FM	4 Rotating General	36811
ncoln General Hospital +^{1}-x48 2315 S. 17th St., Lincoln 2	NPCorp	173	5,944	Req	57	12	No	200FM	4 Rotating General	36911
Elizabeth Hospital +^{1}-X47 1145 South St., Lincoln 2	Church	260	9,733	Req	34	12	No	300PM	6 Rotating General	37011
shop Clarkson Memorial Hospital +^{1}-x48 Dewey Ave. at 44th St., Omaha 5	Church	256	8,486	Req	47	12	203	150PM	11 Rotating General	37111
Memorial St. Joseph Hospital +$^{1-3}$-X47	Church	585	16,524	Req	47	12	No	150FM	16 Rotating General	37211
	Church	122	4,857	Req	55	12	204	300	8 Rotating General	37311
 3612 Cuming St., Omaha 31	Church	257	8,142	Req	58	12	205	300	10 Rotating General	37411
Catherine's Hospital ^{1}-X47 Forest Ave and 9th St., Omaha 8	Church	200	8,350	Req	45	12	206	200FM	8 Rotating General	37511
niversity of Nebraska Hospital +$^{1-3}$-X48 42nd St. and Dewey Ave., Omaha 5	State	164	3,661	Req	80	12	206	150PM	12 Rotating General	37611
NEW HAMPSHIRE—Hospitals, 1; Internships, 16										
ary Hitchcock Memorial Hospital +$^{1-3}$-X49 2 Maynard St., Hanover	NPCorp	267	8,068	....	82	12	No	100PM	16 Rotating General	37711
NEW JERSEY—Hospitals, 41; Internships, 459										
tlantic City Hospital +$^{1-3}$ 25 S. Ohio Ave., Atlantic City	NPCorp	247	8,599	Req	54	12	207	150FM	12 Rotating General	37811
ayonne Hospital and Dispensary $^{1-3}$ 12 E. 30th St., Bayonne	NPCorp	203	6,953	Req	45	12	No	125FM	8 Rotating General	37911
ooper Hospital +$^{1-3}$-X69x-71 6th and Stevens Sts., Camden 3	NPCorp	422	14,411	Req	70	12	No	200FM	12 Rotating General	38011
r Lady of Lourdes Hospital +-x69 1600 Haddon Ave., Camden 3	Church	278	9,490	Req	53	12	No	200FM	10 Rotating General	93311
est Jersey Hospital +$^{1-3}$ Mt. Ephraim and Atlantic Aves., Camden 4	NPCorp	276	9,267	Req	30	12	No	175FM	10 Rotating General	38111
ast Orange General Hospital ^{3} Central and S. Munn Aves., East Orange	NPCorp	169	6,117	Req	35	12	No	125FM	4 Rotating General	38211
Alexian Brothers Hospital ^{3} 655 E. Jersey St., Elizabeth 1	Church	158	4,690	Req	25	12	208	100FM	11 Rotating General	.....
lizabeth General Hospital and Dispensary $^{1-3}$ 925 E. Jersey St., Elizabeth 4	NPCorp	243	10,576	Req	32	12	No	125FM	12 Rotating General	38411
St. Elizabeth Hospital $^{1-3}$ 204 S. Broad St., Elizabeth 2	Church	218	6,623	Req	23	12	No	100FM	9 Rotating General	38511
nglewood Hospital +$^{1-3}$ 350 Engle St., Englewood	NPCorp	270	7,716	Req	42	12	No	100FM	6 Rotating General	38611
ackensack Hospital +$^{1-3}$ 22 Hospital Pl., Hackensack	NPCorp	337	13,103	Req	45	12	No	125FM	12 Rotating General	38711
St. Mary's Hospital $^{1-3}$ 4th St. and Willow Ave., Hoboken	Church	375	7,848	Req	36	12	No	100FM	13 Rotating General	38811
hrist Hospital +$^{1-3}$ 176 Palisade Ave., Jersey City 6	Church	330	8,935	Req	29	12	No	100FM	12 Rotating General	38911
ersey City Hospital +$^{1-3-4}$ 50 Baldwin Ave., Jersey City 4	City	1,019	17,328	Req	31	12	209	67FM	38 Rotating General 12 Straight Medicine 5 Straight Surgery 2 Straight Pediatrics 1 Straight Pathology	39011 39032 39033 39034 39035
St. Francis Hospital $^{1-3}$ 25 E. Hamilton Pl., Jersey City 2	Church	215	5,038	Req	20	12	209	100FM	5 Rotating General	39111
Monmouth Memorial Hospital +$^{1-3-4}$ 3rd and Pavilion Aves., Long Branch	NPCorp	350	12,459	Req	59	12	No	100FM	8 Rotating General	39211
Mountainside Hospital +$^{1-3-4}$ Bay and Highland Aves., Montclair	NPCorp	327	10,326	Req	58	12	No	200FM	11 Rotating General	39311
Morristown Memorial Hospital +$^{1-3}$ 100 Madison Ave., Morristown	NPCorp	236	8,811	Req	62	12	No	175FM	8 Rotating General	39411
Fitkin Memorial Hospital +$^{1-3}$ Corlies Ave., Neptune	NPCorp	260	9,461	Req	32	12	No	150FM	8 Rotating General	39511
Harrison S. Martland Medical Center +$^{1-3-4}$ 116 Fairmount Ave., Newark 7	City	846	13,403	Req	32	12	No	113FM	30 Rotating General	39811
Newark Beth Israel Hospital +$^{1-3-4}$ 201 Lyons Ave., Newark 12	NPCorp	421	14,910	Req	41	12	210	75FM	13 Rotating General	39711
Presbyterian Hospital +$^{1-3}$ 27 S. 9th St., Newark 7	NPCorp	252	11,160	Req	33	12	211	100FM	6 Rotating General	87211
Saint Barnabas Medical Center +$^{1-3}$ 685 High St., Newark 2	NPCorp	234	7,806	Req	37	12	No	100FM	8 Rotating General	39611
St. Michael's Hospital +^{1} 306 High St., Newark 2	Church	403	13,580	Req	49	12	No	125FM	12 Rotating General	39911
Middlesex General Hospital $^{1-3}$ 180 Somerset St., New Brunswick	NPCorp	298	7,437	Req	37	12	No	150FM	10 Rotating General	97911
St. Peter's General Hospital +$^{1-3}$ 250 Easton Ave., New Brunswick	Church	204	8,945	Req	55	12	No	135FM	10 Rotating General	40011

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NEW JERSEY—Continued									
Orange Memorial Hospital *1-3 188 S. Essex Ave., Orange	NPCorp	338	10,524	Req	44	12	No	125FM	8 Rotating General
Bergen Pines County Hospital *1-3 E. Ridgewood Ave., Paramus	County	622	3,801	Req	34	12	209	100FM	20 Rotating General
Passaic General Hospital *3 350 Boulevard, Passaic	NPCorp	250	10,052	Req	39	12	No	100FM	5 Rotating General
St. Mary's Hospital *1-3 211 Pennington Ave., Passaic	Church	192	6,743	Req	31	12	No	75FM	4 Rotating General
Nathan and Miriam Barnert Memorial Hospital *1-3 680 Broadway, Paterson 4	NPCorp	117	5,868	Req	47	12	No	160PM	6 Rotating General
Paterson General Hospital *1-3 528 Market St., Paterson 3	NPCorp	347	10,640	Req	38	12	No	125FM	12 Rotating General
St Joseph Hospital *1-3 703 Main St., Paterson 3	Church	442	12,339	Req	34	12	No	100FM	10 Rotating General
Perth Amboy General Hospital 3 530 New Brunswick Ave., Perth Amboy	NPCorp	352	15,402	....	31	12	No	100FM	14 Rotating General
Muhlenberg Hospital 1-3-4 Park Ave. and Randolph Rd., Plainfield	NPCorp	400	14,353	Req	31	12	No	125-150FM	10 Rotating General
Somerset Hospital 1-3 Rehill Ave., Somerville	NPCorp	215	8,432	Req	38	12	No	150FM	8 Rotating General
Overlook Hospital *3 193 Morris Ave., Summit	NPCorp	251	9,123	Req	36	12	No	125FM	12 Rotating General
Holy Name Hospital *1-3 718 Teaneck Rd., Teaneck	Church	183	8,306	Req	41	12	No	150FM	8 Rotating General
Mercer Hospital *1-3 446 Bellevue Ave., Trenton 8	NPCorp	254	9,033	Req	45	12	No	150FM	9 Rotating General
St. Francis Hospital *1-3 601 Hamilton Ave., Trenton 9	Church	357	11,744	Req	50	12	No	150FM	10 Rotating General
William McKinley Memorial Hospital 1-3 750 Brunswick Ave., Trenton 8	NPCorp	184	6,628	Req	39	12	No	180FM	5 Rotating General
NEW MEXICO—Hospitals, 1; Internships, 9									
Bernalillo County-Indian Hospital *1-3 2211 Lomas Blvd., N.E., Albuquerque	County	215	5,257	Req	60	12	No	250FM	9 Rotating General
NEW YORK—Hospitals, 105; Internships, 1,813									
Albany Hospital *1-3-4X50 New Scotland Ave., Albany 8	NPCorp	620	20,014	Req	62	12	No	135-160PM	24 Rotating General 5 Straight Medicine 12 Straight Surgery
Memorial Hospital 1-3 161 N. Pearl St., Albany 7	NPCorp	137	3,647	Req	41	12	No	130FM	10 Rotating General
St Peter's Hospital *1-3 622 New Scotland Ave., Albany 8	Church	292	8,292	Req	53	12	212	200FM	9 Rotating General
Binghamton City Hospital *1-3 Mitchell and Park Aves., Binghamton	City	402	11,002	Req	47	12-24	No	125FM	15 Rotating General
Lawrence Hospital *1-3 55 Palmer Ave., Bronxville 8	NPCorp	201	5,866	Req	44	12	No	200FM	8 Rotating General
Beth-El Hospital *1-3 Linden Blvd. and Rockaway Pkwy., Brooklyn 12	NPCorp	293	9,728	Req	41	12	No	100FM	18 Rotating General
Brooklyn Hospital *1-3-X57 121 De Kalb Ave., Brooklyn 1	NPCorp	338	9,241	....	49	12	No	160FM	14 Rotating General
Coney Island Hospital *1-3-4 Shore and Ocean Pkwy., Brooklyn 35	City	567	6,232	Req	35	12	No	71FM	29 Rotating General
Cumberland Hospital *1-3-4-x57 39 Auburn Pl., Brooklyn 5	City	307	7,280	Req	45	12	No	71FM	7 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics
Greenpoint Hospital *1-3-4 Kingsland and Skillman Aves., Brooklyn 11	City	281	6,892	Req	28	12	No	71FM	12 Rotating General
Jewish Hospital *1-3-4-X57 555 Prospect Pl., Brooklyn 38	NPCorp	199	15,585	Req	42	12	No	50FM	28 Rotating General 4 Straight Medicine 4 Straight Pediatrics
Kings County Hospital *1-3-4-X57 451 Clarkson Ave., Brooklyn 3	City	3,221	60,558	Req	35	12	No	71FM	114 Rotating General 26 Straight Medicine 10 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology
Long Island College Hospital *1-3X57 340 Henry St., Brooklyn 1	NPCorp	401	11,579	Req	43	12	No	131PM	16 Rotating General 2 Straight Medicine 1 Straight Surgery
Lutheran Hospital 1-3 22 Junius St., Brooklyn 12	Church	153	6,694	Req	37	12	No	200FM	8 Rotating General
Lutheran Medical Center *1-3 4520 4th Ave., Brooklyn 20	Church	205	6,371	Req	65	12	No	50PM	10 Rotating General
Maimonides Hospital *1-3-X57 4802 10th Ave., Brooklyn 19	NPCorp	515	13,591	Req	34	12	No	50FM	24 Rotating General 7 Straight Medicine
Methodist Hospital *1-3-x57 506 6th St., Brooklyn 15	Church	374	10,701	Req	39	12	No	150FM	12 Rotating General 2 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics
Prospect Heights Hospital 1-3 775 Washington Ave., Brooklyn 38	NPCorp	170	5,498	....	27	12	No	200PM	3 Rotating General 1 Rot. (Med. Major) 1 Rot. (Surg. Major)
St. Catherine's Hospital *1-3 133 Bushwick Ave., Brooklyn 6	Church	282	7,903	Req	29	12	No	125FM	10 Rotating General
St John's Episcopal Hospital *1-3 480 Herkimer St., Brooklyn 13	Church	251	7,462	Req	36	12	No	160FM	9 Rotating General 1 Straight Medicine 3 Straight Surgery 1 Straight Pediatrics
St. Mary's Hospital *1-3 1298 St. Marks Ave., Brooklyn 13	Church	237	5,726	Req	40	12	No	125FM	8 Rotating General
St. Peter's Hospital 1-3 380 Henry St., Brooklyn 1	Church	200	3,632	Req	34	12	No	100FM	4 Rotating General 2 Rot. (Med. Major) 2 Rot. (Surg. Major) 2 Rot. (Ped Major) 2 Rot. (Ob.-Gyn Major)
Unity Hospital *1-3 1545 St. Johns Pl., Brooklyn 13	NPCorp	210	6,351	Req	28	12	No	100FM	8 Rotating General
Wyckoff Heights Hospital *1-3 374 Stockholm St., Brooklyn 37	NPCorp	258	8,578	Req	27	12	No	100FM	8 Rotating General

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NEW YORK—Continued										
llied Hospitals of the Sisters of Charity +$^{1-3}$.. (Sisters of Charity and Emergency Hospitals) 2157 Main St., Buffalo 14	Church	607	22,424	Req	31	12	No	225FM	18 Rotating General	44111
uffalo General Hospital +$^{1-3-4}$-X51............ 100 High St., Buffalo 3	NPCorp	646	17,538	Req	63	12	213	150-200FM	18 Rotating General 3 Straight Medicine 3 Straight Surgery	43611 43632 43633
ildren's Hospital +$^{1-3-4}$-X51.................... 219 Bryant St., Buffalo 22	NPCorp	260	11,700	Req	86	12	No	100FM	6 Straight Pediatrics	96534
aconess Hospital +$^{1-3}$........................ 563 Riley St., Buffalo 8	NPCorp	285	10,139	Req	38	12	214	250FM	14 Rotating General	43711
dward J. Meyer Memorial Hospital +$^{1-4}$-X51.. 462 Grider St., Buffalo 15	County	989	12,354	Req	41	12	No	233PM	24 Rotating General	43811
ercy Hospital +$^{1-3}$............................. 565 Abbott Rd., Buffalo 20	Church	360	12,862	Req	41	12	No	200-225FM	20 Rotating General	43911
illard Fillmore Hospital +$^{1-3-4}$-x51........... 3 Gates Circle, Buffalo 9	NPCorp	563	19,303	Req	45	12	213	260	15 Rotating General	44011
sters of Charity Hospital....................... Buffalo 14	See Allied Hospitals of the Sisters of Charity									
ary Imogene Bassett Hospital +$^{1-3}$-x50-X53.... Atwell Rd., Cooperstown	NPCorp	112	3,382	Req	63	12	No	110PM	9 Rotating General 1 Straight Medicine	44211 44232
lmhurst General Hospital +$^{1-3-4}$................ 79-01 Broadway, Elmhurst 73 (Replacing New York City Hospital)	City	823	11,631	Req	25	12	No	71FM	36 Rotating General	49111
rnot Ogden Memorial Hospital +$^{1-3}$............ Roe Ave., Elmira	NPCorp	213	7,770	Req	46	12	No	200FM	4 Rotating General	44311
. Joseph's Hospital +$^{1-3}$....................... 555 E. Market St., Elmira	Church	229	8,879	Req	38	12	No	300PM	4 Rotating General	44411
lushing Hospital and Dispensary +$^{1-3}$......... 44-14 Parsons Blvd., Flushing 55	NPCorp	313	12,267	Req	45	12	No	150FM	12 Rotating General	44511
ommunity Hospital $^{1-3}$......................... St. Andrews Lane, Glen Cove	NPCorp	183	7,935	Req	43	12	No	200FM	8 Rotating General	44611
lens Falls Hospital +$^{1-3}$........................ 100 Park St., Glens Falls	NPCorp	240	11,488	Req	35	12	No	200FM	6 Rotating General	44711
eadowbrook Hospital +$^{1-3}$....................... Bethpage Tpke. and Carman Ave., Hempstead	County	600	14,348	Req	47	12	No	150FM	34 Rotating General	44811
amaica Hospital +$^{1-3}$........................... 89th Ave. and Van Wyck Expwy., Jamaica 18	NPCorp	268	9,017	Req	35	12	No	125FM	12 Rotating General	44911
ary Immaculate Hospital +$^{1-3-4}$................ 152-11 89th Ave., Jamaica 32	Church	295	9,263	Req	36	12	No	150FM	8 Rotating General	45011
ueens General Hospital +$^{1-3-4}$.................. 82-68 164th St., Jamaica 32	City	1,430	13,899	Req	37	12	No	71FM	34 Rotating General	45111
harles S. Wilson Memorial Hospital +$^{1-3}$....... 33 Harrison St., Johnson City	NPCorp	450	13,437	Req	36	12	No	200PM	12 Rotating General	45211
ur Lady of Victory Hospital +^{3}.................. 800 Ridge Rd., Lackawanna 18	Church	260	9,112	Req	28	12	No	150FM	9 Rotating General	45311
t. John's Long Island City Hospital +$^{1-3}$...... 25-01 Jackson Ave., Long Island City 1	Church	222	6,104	Req	29	12	No	100FM	16 Rotating General	45411
assau Hospital +$^{1-3}$............................ 1st St., Mineola	NPCorp	311	13,754	Req	43	12	No	150FM	6 Rotating General	45511
orthern Westchester Hospital $^{1-3}$.............. E. Main St., Mount Kisco	NPCorp	145	5,199	Req	40	12	No	100FM	4 Rotating General	45611
ount Vernon Hospital +$^{1-3}$....................... 12 N. 7th Ave., Mount Vernon	NPCorp	265	8,500	Req	45	12	No	100FM	12 Rotating General	45711
t. Luke's Hospital $^{1-3-4}$........................ 70 Dubois St., Newburgh	NPCorp	194	7,402	Req	27	12	No	200FM	8 Rotating General	45811
ong Island Jewish Hospital +$^{1-3-4}$............. 270-05 76th Ave., New Hyde Park	NPCorp	249	8,340	Req	66	12	No	50FM	14 Rotating General	96311
ew Rochelle Hospital +$^{1-3-4}$.................... 16 Guion Pl., New Rochelle	NPCorp	337	10,463	Req	36	12	No	200FM	10 Rotating General	45911
ellevue Hospital Center +$^{1-3-4}$-X53-54-56........ 1st Ave. and 27th St., New York 16	City	2,684	45,505	Req	40	12	...	71FM		
First Medical Division— Columbia University +$^{1-3}$....................... Dr Dickinson W. Richards	....	....	.....	Req	..	12	No	71FM	12 Mixed (Med.-Chest-Surg. or Path.)	46067
First Surgical Division— Columbia University +$^{1-3}$....................... Dr. Kenneth M. Lewis, Sr.	....	....	.....	Req	..	12	No	71FM	4 Rot. (Surg. Major) 2 Straight Surgery	46113 46133
Second Medical Division— Cornell University +$^{1-3}$......................... Dr. Thomas P. Almy	....	....	.....	Req	..	12	215	71FM	24 Straight Medicine 2 Mixed (Med.-Path.)	46232 46227
Second Surgical Division— Cornell University +$^{1-3}$......................... Dr. Cranston W. Holman	....	....	.....	Req	..	12	No	71FM	7 Straight Surgery	46333
Third Medical Division— New York Univ. Col. of Med. +$^{1-3}$.............. Dr. William S. Tillett	....	....	.....	Req	..	12	No	71FM	12 Straight Medicine 4 Mixed (Med.-Surg.)	46432 46424
Third Surgical Division— New York Univ. Col. of Med. +$^{1-3}$.............. Dr. John H. Mulholland	....	....	.....	Req	..	12	No	71FM	6 Straight Surgery 4 Mixed (Surg.-Med.)	46533 46524
Third Division, Dept. of Pathology— New York Univ. Col. of Med. +$^{1-3}$.............. Dr. Marvin Kuschner	....	....	.....	....	..	12	No	71FM	1 Straight Pathology	93036
Third Division, Dept. of Pediatrics— New York Univ. Col of Med. +$^{1-3}$.............. Dr. L. Emmett Holt, Jr.	....	....	.....	Req	..	12	No	71FM	10 Straight Pediatrics	92934
Fourth Medical Division— New York Univ. Post-Graduate Medical School +$^{1-3}$.............................. Dr. Charles F. Wilkinson, Jr.	....	....	.....	....	..	12	216	71FM	11 Straight Medicine	46632
Fourth Surgical Division— New York Univ. Post-Graduate Medical School +$^{1-3-4}$........................... Dr. J. William Hinton	....	....	.....	Req	..	12	No	71FM	8 Straight Surgery	46733
Beth David Hospital (42nd St.) +$^{1-3}$............ 321 E. 42nd St., New York 17	NPCorp	280	5,173	Req	27	12	No	70FM	14 Rotating General	46911
Beth Israel Hospital +$^{1-3-4}$...................... 10 Nathan D. Perlman Pl., New York 3	NPCorp	358	8,957	Req	45	12	No	110PM	16 Rotating General	47011
Bronx Hospital +$^{1-3-4}$............................ 1276 Fulton Ave., New York 56	NPCorp	329	8,727	Req	31	12	No	50FM	9 Rotating General	47111
Bronx Municipal Hospital Center +$^{1-3-4}$-X52.... Pelham Pkwy. and Eastchester Rd., New York 61	City	731	6,428	Req	54	12	No	71FM	16 Straight Medicine 12 Straight Surgery 10 Straight Pediatrics	93132 93133 93134

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NEW JERSEY—Continued									
Orange Memorial Hospital +[1-3] 188 S. Essex Ave., Orange	NPCorp	338	10,524	Req	41	12	No	125FM	8 Rotating General
Bergen Pines County Hospital +[1-3] E. Ridgewood Ave., Paramus	County	622	3,801	Req	34	12	209	100FM	20 Rotating General
Passaic General Hospital +[3] 350 Boulevard, Passaic	NPCorp	250	10,052	Req	38	12	No	100FM	5 Rotating General
St. Mary's Hospital +[1-3] 211 Pennington Ave., Passaic	Church	192	6,713	Req	31	12	No	75FM	4 Rotating General
Nathan and Miriam Barnert Memorial Hospital +[1-3] 680 Broadway, Paterson 4	NPCorp	117	5,868	Req	17	12	No	160PM	6 Rotating General
Paterson General Hospital +[1-3] 528 Market St., Paterson 3	NPCorp	347	10,610	Req	28	12	No	125FM	12 Rotating General
St. Joseph Hospital +[1-3] 703 Main St., Paterson 3	Church	412	12,339	Req	31	12	No	100FM	10 Rotating General
Perth Amboy General Hospital [3] 530 New Brunswick Ave., Perth Amboy	NPCorp	352	15,402	....	31	12	No	100FM	14 Rotating General
Muhlenberg Hospital [1-3-4] Park Ave. and Randolph Rd., Plainfield	NPCorp	400	11,353	Req	31	12	No	125-150FM	10 Rotating General
Somerset Hospital [1-3] Rehill Ave., Somerville	NPCorp	215	8,432	Req	38	12	No	150FM	8 Rotating General
Overlook Hospital +[3] 193 Morris Ave., Summit	NPCorp	251	9,123	Req	56	12	No	125FM	12 Rotating General
Holy Name Hospital +[1-3] 718 Teaneck Rd., Teaneck	Church	183	8,306	Req	41	12	No	150FM	8 Rotating General
Mercer Hospital +[1-3] 446 Bellevue Ave., Trenton 8	NPCorp	254	9,033	Req	45	12	No	150FM	9 Rotating General
St. Francis Hospital +[1-3] 601 Hamilton Ave., Trenton 9	Church	357	11,744	Req	50	12	No	150FM	10 Rotating General
William McKinley Memorial Hospital [1-3] 750 Brunswick Ave., Trenton 8	NPCorp	184	6,628	Req	39	12	No	180FM	5 Rotating General
NEW MEXICO—Hospitals, 1; Internships, 9									
Bernalillo County-Indian Hospital +[1-3] 2211 Lomas Blvd., N.E., Albuquerque	County	215	5,257	Req	60	12	No	250FM	9 Rotating General
NEW YORK—Hospitals, 105; Internships, 1,813									
Albany Hospital +[1-3-4]X50 New Scotland Ave., Albany 8	NPCorp	620	20,614	Req	62	12	No	135-160PM	24 Rotating General 5 Straight Medicine 12 Straight Surgery
Memorial Hospital [1-3] 161 N. Pearl St., Albany 7	NPCorp	137	3,617	Req	41	12	No	130FM	10 Rotating General
St. Peter's Hospital +[1-3] 632 New Scotland Ave., Albany 8	Church	292	8,292	Req	53	12	212	200FM	9 Rotating General
Binghamton City Hospital +[1-3] Mitchell and Park Aves., Binghamton	City	402	11,002	Req	47	12-24	No	125FM	15 Rotating General
Lawrence Hospital +[1-3] 55 Palmer Ave., Bronxville 8	NPCorp	201	5,893	Req	44	12	No	200FM	8 Rotating General
Beth-El Hospital +[1-3] Linden Blvd. and Rockaway Pkwy., Brooklyn 12	NPCorp	293	9,728	Req	41	12	No	100FM	18 Rotating General
Brooklyn Hospital +[1-3]-X57 121 De Kalb Ave., Brooklyn 1	NPCorp	338	9,241	....	49	12	No	160FM	14 Rotating General
Coney Island Hospital +[1-3-4] Shore and Ocean Pkwy., Brooklyn 35	City	367	6,232	Req	35	12	No	71FM	29 Rotating General
Cumberland Hospital +[1-3-4]-x57 39 Auburn Pl., Brooklyn 5	City	307	7,280	Req	45	12	No	71FM	7 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics
Greenpoint Hospital +[1-3-4] Kingsland and Skillman Aves., Brooklyn 11	City	281	6,802	Req	28	12	No	71FM	12 Rotating General
Jewish Hospital +[1-3-4]-X57 555 Prospect Pl., Brooklyn 38	NPCorp	490	15,535	Req	42	12	No	50FM	28 Rotating General 4 Straight Medicine 4 Straight Pediatrics
Kings County Hospital +[1-3-4]-X57 451 Clarkson Ave., Brooklyn 3	City	3,221	60,553	Req	35	12	No	71FM	114 Rotating General 26 Straight Medicine 10 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology
Long Island College Hospital +[1-3]X57 340 Henry St., Brooklyn 1	NPCorp	401	11,579	Req	43	12	No	131PM	16 Rotating General 2 Straight Medicine 1 Straight Surgery
Lutheran Hospital [1-3] 22 Junius St., Brooklyn 12	Church	153	6,694	Req	37	12	No	200FM	8 Rotating General
Lutheran Medical Center +[1-3] 4520 4th Ave., Brooklyn 20	Church	207	6,371	Req	65	12	No	50PM	10 Rotating General
Maimonides Hospital +[1-3]-X57 4802 10th Ave., Brooklyn 19	NPCorp	515	13,591	Req	34	12	No	50FM	24 Rotating General 7 Straight Medicine
Methodist Hospital +[1-3]-x57 506 6th St., Brooklyn 15	Church	374	10,701	Req	39	12	No	150FM	12 Rotating General 2 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics
Prospect Heights Hospital [1-3] 775 Washington Ave., Brooklyn 38	NPCorp	170	5,498	....	27	12	No	200PM	3 Rotating General 1 Rot. (Med. Major) 1 Rot. (Surg. Major)
St. Catherine's Hospital +[1-3] 133 Bushwick Ave., Brooklyn 6	Church	282	7,903	Req	29	12	No	125FM	10 Rotating General
St John's Episcopal Hospital +[1-3] 480 Herkimer St., Brooklyn 13	Church	251	7,462	Req	36	12	No	160FM	9 Rotating General 1 Straight Medicine 3 Straight Surgery 1 Straight Pediatrics
St. Mary's Hospital +[1-3] 1298 St. Marks Ave., Brooklyn 13	Church	237	5,726	Req	40	12	No	125FM	8 Rotating General
St. Peter's Hospital [1-3] 380 Henry St., Brooklyn 1	Church	200	3,632	Req	34	12	No	100FM	4 Rotating General 2 Rot. (Med. Major) 2 Rot. (Surg. Major) 2 Rot. (Ped Major) 2 Rot. (Ob.-Gyn Major)
Unity Hospital +[1-3] 1545 St. Johns Pl., Brooklyn 13	NPCorp	210	6,851	Req	28	12	No	100FM	8 Rotating General
Wyckoff Heights Hospital +[1-3] 374 Stockholm St., Brooklyn 37	NPCorp	258	8,578	Req	27	12	No	100FM	8 Rotating General

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NEW YORK—Continued										
St. Vincent's Hospital $^{+1-3}$ 355 Bard Ave., Staten Island 10	Church	255	9,349	Req	40	12	No	100FM	8 Rotating General	51411
Staten Island Hospital $^{+1-3}$ 101 Castleton Ave., Staten Island 1	NPCorp	215	7,742	Req	30	12	No	100FM	8 Rotating General	51511
General Hospital $^{+1-3}$-x59 116 E. Castle St., Syracuse 5	NPCorp	122	5,807	Req	36	12	No	167	3 Mixed (Med.-Surg.-Ob.-Gyn.)	51722
St. Joseph's Hospital $^{+1}$-X59 301 Prospect Ave., Syracuse 3	Church	304	12,125	Req	43	12	No	167PM	12 Rotating General	51811
State University of New York Upstate Medical Center Hospitals (University Hospital of the Good Shepherd, Crouse-Irving and Memorial Hospitals) $^{+1-3}$-X59 766 Irving Ave., Syracuse 10	NPCorp	695	25,917	Req	45	12	No	208	16 Rotating General 6 Straight Medicine 5 Straight Surgery 3 Straight Pediatrics 4 Mixed (Med.-Surg.)	51611 51632 51633 51634 51624
Leonard Hospital ^{3} 41 114th St., Troy	NPCorp	163	6,080	Req	28	12	No	150FM	7 Rotating General	96911
St. Mary Hospital ^{3} 57 Oakwood Ave., Troy	Church	225	6,423	Req	41	12	No	175FM	6 Rotating General	51911
Samaritan Hospital $^{+1-3}$ Peoples and Burdett Aves., Troy	NPCorp	166	6,973	Req	40	12	No	250FM	8 Rotating General	52011
Grasslands Hospital $^{+1-3-4}$ Valhalla	County	632	4,954	Req	54	12	No	150FM	10 Mixed (Med.-Ped.-Surg.) 10 Mixed (Surg.-Ob.-Med.)	52123 52169
White Plains Hospital $^{+1-3}$ 41 E. Post Rd., White Plains	NPCorp	201	6,900	Req	46	12	No	150FM	8 Rotating General	52311
St. John's Riverside Hospital $^{+1-3}$ 65 Ashburton Ave., Yonkers	NPCorp	214	6,568	Req	31	12	No	120FM	8 Rotating General	52411
Yonkers General Hospital $^{1-3}$ 127 Ashburton Ave., Yonkers	NPCorp	143	5,328	Req	31	12	No	160FM	7 Rotating General	52611
NORTH CAROLINA—Hospitals, 12; Internships, 202										
Memorial Mission Hospital of Western North Carolina ^{1} 509 Biltmore Ave., Asheville	NPCorp	350	11,020	Req	28	12	No	225PM	8 Rotating General	94911
North Carolina Memorial Hospital $^{+1-3}$-X60 Pittsboro Rd., Chapel Hill	State	359	8,515	Req	72	12	224	135	12 Straight Medicine 8 Straight Surgery 4 Straight Pediatrics 3 Straight Pathology 7 Mixed (Med.-Ped.)	90032 90033 90034 90035 90048
Charlotte Memorial Hospital $^{+1-4}$ 1100 Scott Ave., Charlotte 3	NPCorp	352	13,341	Req	68	12	No	200FM	10 Rotating General	52711
Duke Hospital $^{+1-3-4}$-X61 Durham	NPCorp	559	16,571	Req	64	12	225	25FM	24 Straight Medicine 16 Straight Surgery 10 Straight Pediatrics 4 Straight Pathology 4 Mixed (Ob.-Ped.)	52932 52933 52934 52935 52988
Lincoln Hospital $^{+1-3}$ 1301 Fayetteville St., Durham	NPCorp	125	2,739	Req	33	12	No	150FM	4 Rotating General	53011
Watts Hospital $^{+1-3}$ Club Blvd., Durham	NPCorp	250	10,303	Req	42	12	No	150FM	12 Rotating General 2 Straight Medicine 4 Mixed (Med.-Ob.-Gyn.-Surg.)	87711 87732 87722
Moses H. Cone Memorial Hospital $^{+1-3}$ 1200 N. Elm St., Greensboro	NPCorp	285	9,822	Req	63	12	No	200FM	12 Rotating General	94311
Rex Hospital $^{+1}$ 1311 St. Mary's St., Raleigh	NPCorp	310	13,531	Req	28	12	No	225FM	12 Rotating General	53211
James Walker Memorial Hospital $^{1-3}$ 10th and Rankin Sts., Wilmington	NPCorp	250	10,479	Req	27	12	No	100FM	8 Rotating General	53511
City Memorial Hospital $^{+1-3}$ 1 Hospital St., Winston-Salem 4	City	294	12,723	Req	44	12	No	250PM	16 Rotating General	53611
Kate Bitting Reynolds Memorial Hospital $^{+1}$ 1101 E. 7th St., Winston-Salem 4	City	177	5,476	Req	28	12	No	250FM	6 Rotating General	53711
North Carolina Baptist Hospital $^{+1-3}$-X62 300 S. Hawthorne Rd., Winston-Salem 7	Church	385	13,903	Req	67	12-24	No	83PM	7 Straight Medicine 3 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology 2 Mixed (Ob.-Gyn.-Ped.-Med.) 24 mo.	53732 53733 53734 53735 53721
NORTH DAKOTA—Hospitals, 4; Internships, 21										
St. John's Hospital $^{1-3}$ 205 6th Ave S., Fargo	Church	175	6,521	Req	67	12	No	175FM	5 Rotating General	87011
St. Luke's Hospital $^{+1}$ 727 Broadway, Fargo	NPCorp	180	7,180	....	52	12	No	175FM	8 Rotating General	53911
Grand Forks Deaconess Hospital $^{1-3}$ 222 S. 4th St., Grand Forks	NPCorp	150	5,753	Req	61	12	No	175FM	4 Rotating General	54011
Trinity Hospital ^{1} 13 4th Ave. S W., Minot	NPCorp	175	6,188	Req	65	12	No	100FM	4 Rotating General	91711
OHIO—Hospitals, 52; Internships, 761										
Akron City Hospital $^{+1-3}$ 525 E. Market St., Akron 9	NPCorp	485	17,741	Req	42	12	226	200FM	24 Rotating General	54211
Akron General Hospital $^{+1}$ 400 Wabash Ave., Akron 7	NPCorp	405	13,305	Req	50	12	226	200FM	24 Rotating General	54111
St. Thomas Hospital $^{+1-3}$ 444 N. Main St., Akron 10	Church	288	10,317	Req	48	12	No	200FM	10 Rotating General	54311
Barberton Citizens Hospital $^{+1-3}$ Tuscora Park, Barberton	NPCorp	235	9,116	Req	55	12	No	225FM	12 Rotating General	96411
Aultman Hospital $^{+1-3}$ 625 Clarendon Ave., S.W., Canton 10	NPCorp	457	15,908	Req	46	12	No	250PM	14 Rotating General	54411
Mercy Hospital $^{+1-3}$ 723 Market Ave. N., Canton 2	Church	302	13,273	Req	44	12	No	125FM	10 Rotating General	54511
Bethesda Hospital $^{+1-3}$ Oak St. and Reading Rd., Cincinnati 6	Church	220	10,353	Req	48	12	227	150FM	8 Rotating General 2 Mixed (Med.-Ob.-Surg.)	54611 54609
Christ Hospital $^{+1}$ 2139 Auburn Ave	Church	356	11,419	Req	47	12	227	175FM	13 Rotating General	54711
Cincinnati General 3231 Burnet Ave	City	810	15,767	Req	61	12	228	15FM	52 Rotating General	54811

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OHIO—Continued										
Good Samaritan Hospital +$^{1-3}$ 3217 Clifton Ave., Cincinnati 20	Church	591	10,231	None	47	12	No	200FM	16 Rotating General	[illegible]
Jewish Hospital +$^{1-3}$ Burnet Ave., Cincinnati 29	NPCorp	387	15,747	Req	50	12	No	125FM	16 Rotating General	[illegible]
St. Mary's Hospital +$^{1-3}$ 816 Betts St., Cincinnati 14	Church	204	5,200	Req	44	12	No	200FM	12 Rotating General	[illegible]
City Hospital +$^{1-3-4}$-X64 3395 Scranton Rd., Cleveland 9	City	894	9,943	Req	50	12	No	92FM	30 Rotating General	[illegible]
Cleveland Clinic Hospital + 2020 E. 93rd St., Cleveland 6	NPCorp	447	11,777	Req	60	12	229	100FM	12 Rotating General	[illegible]
Evangelical Deaconess Hospital +$^{1-3}$ 4229 Pearl Rd., Cleveland 9	Church	209	10,130	Req	36	12	No	100FM	10 Rotating General	[illegible]
Fairview Park Hospital +$^{1-3}$ 18101 Lorain Ave., Cleveland 11	NPCorp	295	11,000	Req	50	12	No	200FM	12 Rotating General	[illegible]
Huron Road Hospital +$^{1-3}$ 13951 Terrace Rd., Cleveland 12	NPCorp	294	11,338	Req	43	12	No	200FM	12 Rotating General	[illegible]
Lutheran Hospital +$^{1-3}$ 2609 Franklin Blvd., Cleveland 13	Church	189	7,537	Req	65	12	No	235PM	12 Rotating General	[illegible]
Mount Sinai Hospital +^{1} 1800 E. 105th St., Cleveland 6	NPCorp	318	14,185	Req	50	12	No	150FM	18 Rotating General	[illegible]
St. Alexis Hospital +$^{1-3}$ 5163 Broadway, Cleveland 27	Church	294	10,871	Req	42	12	No	175-250PM	8 Rotating General	[illegible]
St. John's Hospital +$^{1-3}$ 7911 Detroit Ave., Cleveland 2	Church	266	9,035	Req	41	12	No	150FM	7 Rotating General	[illegible]
St. Luke's Hospital +$^{1-3-4}$ 11311 Shaker Blvd., Cleveland 4	Church	456	17,907	Req	54	12	No	100FM	27 Rotating General	[illegible]
St. Vincent Charity Hospital +$^{1-3}$ 2222 Central Ave., Cleveland 15	Church	350	10,302	Req	53	12	230	200FM	15 Rotating General	[illegible]
University Hospitals +$^{1-3}$-X64 2065 Adelbert Rd., Cleveland 6	NPCorp	826	22,540	Req	64	12	No	100PM	16 Rotating General 12 Straight Medicine 8 Straight Surgery 4 Straight Pediatrics 2 Straight Pathology	[illegible]
Grant Hospital +^{3} 125 S. Grant Ave., Columbus 15	NPCorp	242	10,511	None	43	12	231	250FM	12 Rotating General	[illegible]
Mount Carmel Hospital +^{1} 793 W. State St., Columbus 22	Church	400	17,172	Req	47	12	231	250PM	16 Rotating General	[illegible]
University Hospitals +$^{1-4}$-X65 10th and Perry Sts., Columbus 10	State	592	20,388	Req	72	12	232	152PM	24 Rotating General 12 Rot. (Med. Major) 12 Rot. (Surg. Major)	[illegible]
White Cross Hospital +$^{1-3}$ 700 N. Park St., Columbus 8	Church	330	14,217	Req	45	12	231	225FM	14 Rotating General	[illegible]
Good Samaritan Hospital +$^{1-3}$ 1425 W. Fairview Ave., Dayton 6	Church	420	15,411	Req	37	12	No	200PM	10 Rotating General	[illegible]
Miami Valley Hospital +$^{1-3-4}$ 1 Wyoming St., Dayton 9	NPCorp	650	21,857	Req	45	12	No	225PM	16 Rotating General	[illegible]
St. Elizabeth Hospital +$^{1-3}$ 49 Hopeland St., Dayton 8	Church	510	17,441	Req	38	12	No	125FM	16 Rotating General	[illegible]
Elyria Memorial Hospital +$^{1-3}$ 630 E. River St., Elyria	NPCorp	215	8,635	Req	65	12	No	100-150FM	5 Rotating General	[illegible]
Euclid-Glenville Hospital +$^{1-3}$ E. 185th St. and Lake Erie, Euclid 19	NPCorp	186	8,111	Req	34	12	No	100FM	10 Rotating General	[illegible]
Mercy Hospital +$^{1-3}$ 116 Dayton St., Hamilton	Church	300	12,825	Req	40	12	No	150FM	8 Rotating General	[illegible]
Lakewood Hospital +$^{1-3}$ 14519 Detroit Ave., Lakewood 7	City	272	10,239	Req	43	12	No	175FM	6 Rotating General	[illegible]
Lima Memorial Hospital +^{1} Linden and Mobel Sts., Lima	NPCorp	275	11,143	Req	29	12	No	250FM	12 Rotating General	[illegible]
St. Rita's Hospital +$^{1-3}$ 801 W. High St., Lima	Church	293	12,450	Req	49	12	233	300PM	12 Rotating General	[illegible]
St. Joseph Hospital +$^{1-3}$ 2026 Broadway, Lorain	Church	220	10,790	Req	36	12	234	200FM	6 Rotating General	[illegible]
Mercy Hospital ^{1} 1343 N. Fountain Blvd., Springfield	Church	305	10,266	Req	52	12	No	250PM	9 Rotating General	[illegible]
Springfield City Hospital +^{1} 2615 E. High St., Springfield	City	249	8,485	Req	51	12	No	175FM	9 Rotating General	[illegible]
Ohio Valley Hospital +^{3} 380 Summit Ave., Steubenville	NPCorp	210	9,529	Req	25	12	235	225FM	8 Rotating General	[illegible]
Flower Hospital +$^{1-3}$ 3349 Cherry St., Toledo 12	NPCorp	167	7,539	Req	34	12	No	250FM	6 Rotating General	[illegible]
Maumee Valley Hospital +$^{1-3}$ 2025 Arlington Ave., Toledo 9	County	276	4,430	Req	47	12	No	200FM	8 Rotating General	[illegible]
Mercy Hospital +$^{1-3}$ 2221 Madison Ave., Toledo 2	Church	275	12,536	Req	50	12	No	250FM	14 Rotating General	[illegible]
Riverside Hospital $^{1-3}$ 1600 Summit St., Toledo 11	NPCorp	186	6,268	Req	37	12	No	250FM	6 Rotating General	[illegible]
St. Charles Hospital +$^{1-3}$ Wheeling and Navarre Sts., Toledo 5	Church	201	8,049	Req	42	12	No	250FM	8 Rotating General	[illegible]
St. Vincent's Hospital +$^{1-3}$ 2213 Cherry St., Toledo 8	Church	438	16,490	Req	37	12	236	200FM	15 Rotating General	[illegible]
Toledo Hospital +$^{1-3}$ 2142 N. Cove Blvd., Toledo 6	NPCorp	277	12,366	Req	72	12	No	200FM	16 Rotating General	[illegible]
Trumbull Memorial Hospital +$^{1-3}$ 1350 E. Market St., Warren	NPCorp	347	13,960	Req	29	12	No	250FM	14 Rotating General	[illegible]
St. Elizabeth Hospital +$^{1-3}$ 1044 Belmont Ave., Youngstown 4	Church	362	14,659	Req	37	12	No	200FM	15 Rotating General	[illegible]
Youngstown Hospital +$^{1-3-4}$ Oak Hill and Francis St., Youngstown 1 Gypsy Lane at Goleta Ave., Youngstown 4	NPCorp	700	25,568	Req	53	12	No	150FM	18 Rotating General	[illegible]
Good Samaritan Hospital ^{3} 1247 Ashland Ave., Zanesville	Church	154	6,394	Req	37	12	No	225FM	6 Rotating General	[illegible]
OKLAHOMA—Hospitals, 6; Internships, 96										
Mercy Hospital—Oklahoma City General $^{1-3}$ 501 N.W. 12th St., Oklahoma City 3	Church	250	11,660	Req	31	12	111	200FM	9 Rotating General	[illegible]
St. Anthony Hospital +-X66 601 N.W. 9th St., Oklahoma City 3	Church	387	16,480	Req	32	12	No	200PM	16 Rotating General	[illegible]
University of Oklahoma Hospitals +$^{1-4}$-X66 800 N.E. 13th St., Oklahoma City 4	State	470	10,049	Req	39	12	237	75FM	12 Rotating General 6 Rot. (Med. Major) 6 Rot. (Surg. Major)	[illegible]
Wesley Hospital +-x66 300 N.W. 12th St., Oklahoma City 3	Part	200	10,115	Req	35	12	111	200FM	8 Rotating General	[illegible]

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OKLAHOMA—Continued										
Hillcrest Medical Center +1 1653 E. 12th St., Tulsa 20	NPCorp	350	17,321	Req	35	12	No	100FM	16 Rotating General	59111
St. John's Hospital +1-3 1923 S. Utica St., Tulsa 4	Church	625	20,041	Req	29	12	No	150FM	16 Rotating General	59211
OREGON—Hospitals, 7; Internships, 95										
Sacred Heart General Hospital 1 731 E. 12th Ave., Eugene	Church	270	12,755	Req	82	12	No	150FM	8 Rotating General	59311
Emanuel Hospital +1-3 2801 N. Gantenbein Ave., Portland 12	Church	431	17,860	Req	61	12	No	250PM	14 Rotating General	59411
Good Samaritan Hospital +1-3 1015 N.W. 22nd Ave., Portland 10	Church	417	14,888	Req	66	12	No	250PM	12 Rotating General 1 Straight Pathology	59511 59536
Portland Sanitarium and Hospital 1 932 S.E. 60th Ave., Portland 15	Church	176	8,970	None	44	12	No	200PM	8 Rotating General	59611
Providence Hospital +1-3 700 N.E. 47th Ave., Portland 13	Church	285	11,069	Req	69	12	238	250PM	12 Rotating General	59711
St. Vincent's Hospital +1-3 2447 N.W. Westover Rd., Portland 10	Church	383	13,574	Req	45	12	239	250PM	12 Rotating General	59811
University of Oregon Medical School Hospitals and Clinics +1-X67 3181 S.W. Sam Jackson Park Rd., Portland 1	State	562	8,506	Req	68	12	No	100FM	28 Rotating General	59911
PENNSYLVANIA—Hospitals, 74; Internships, 919										
Abington Memorial Hospital +1-3-4 1200 York Rd., Abington	NPCorp	314	9,906	Req	43	12	No	150FM	12 Rotating General	60011
Allentown Hospital +1 17th and Chew Sts., Allentown	NPCorp	503	15,656	Req	42	12	No	200-225FM	14 Rotating General	60111
Sacred Heart Hospital +1-3 4th and Chew Sts., Allentown	Church	391	9,371	Req	43	12	No	200FM	10 Rotating General	60211
Altoona Hospital +1-5 700 Howard Ave., Altoona	NPCorp	322	9,676	Req	36	12	No	300PM	12 Rotating General	60311
Mercy Hospital 1 2501 8th Ave., Altoona	Church	162	5,593	Req	30	12	No	200FM	4 Rotating General	60411
St. Luke's Hospital +1-3 801 Ostrum St., Bethlehem	NPCorp	363	11,390	Req	45	12	No	250FM	12 Rotating General	60511
Lower Bucks County Hospital 1-3 Bath Rd. and Orchard Ave., Bristol	NPCorp	147	9,126	Req	48	12	No	150FM	6 Rotating General	97411
Bryn Mawr Hospital +1-3 Bryn Mawr Ave., Bryn Mawr	NPCorp	358	11,140	Req	55	12	No	175FM	12 Rotating General	60611
Chester Hospital +1-4 9th and Barclay Sts., Chester	NPCorp	281	9,244	Req	61	12	No	250FM	8 Rotating General	60711
Geo. F. Geisinger Memorial Hospital +1-3-4 Danville	NPCorp	270	10,314	Req	61	12	No	150FM	12 Rotating General	60811
Thomas M. Fitzgerald-Mercy Hospital +1-3 Lansdowne Ave. and Baily Rd., Darby	Church	334	14,498	Req	48	12	No	200FM	12 Rotating General	60911
Easton Hospital +1-3-4 21st and Lehigh Sts., Easton	NPCorp	259	8,520	Req	43	12	No	200FM	6 Rotating General	61011
Hamot Hospital +1-3 4 E. 2nd St., Erie 6	NPCorp	382	13,669	Req	51	12	No	150-200FM	10 Rotating General	61111
St. Vincent's Hospital +1-3 2420 Sassafras St., Erie 6	NPCorp	311	12,700	Req	48	12	No	200FM	10 Rotating General	61211
Harrisburg Hospital +1-3-4-X68 Front and Mulberry Sts., Harrisburg	NPCorp	492	16,487	Req	60	12	No	200FM	18 Rotating General	61411
Harrisburg Polyclinic Hospital +1 3rd and Radnor Sts., Harrisburg	NPCorp	500	13,347	Req	59	12	No	200FM	16 Rotating General	61511
Conemaugh Valley Memorial Hospital +1-3 1086 Franklin St., Johnstown	NPCorp	432	15,237	Req	37	12	No	250FM	10 Rotating General	61611
Nesbitt Memorial Hospital 1 562 Wyoming Ave., Kingston	NPCorp	200	6,842	Req	34	12	No	300FM	4 Rotating General	95211
Lancaster General Hospital +1 525 N. Duke St., Lancaster	NPCorp	450	14,470	Req	46	12	No	200FM	12 Rotating General	61811
St. Joseph's Hospital +1 College Ave. and Walnut St., Lancaster	Church	267	7,970	Req	45	12	No	200FM	4 Rotating General	61911
McKeesport Hospital 1 1500 5th Ave., McKeesport	NPCorp	445	14,427	Req	41	12	No	250FM	10 Rotating General	62011
Montgomery Hospital +1-3 Powell and Fornance Sts., Norristown	NPCorp	187	8,060	Req	44	12	No	250FM	6 Rotating General	62111
Sacred Heart Hospital +1-3 1430 De Kalb St., Norristown	Church	175	6,445	Req	54	12	No	250PM	2 Rotating General	62211
Albert Einstein Medical Center York and Tabor Rds., Philadelphia 41										
Northern Division +1-3-4-X70	NPCorp	400	13,620	Req	44	12	No	75FM	33 Rotating General	63111
Southern Division +1-3-4-X68	NPCorp	316	9,265	Req		12	No	75FM		
Chestnut Hill Hospital +1 8835 Germantown Ave., Philadelphia 18	NPCorp	134	5,953	Req	51	12	No	250FM	4 Rotating General	91011
Episcopal Hospital +1-4-X70 Front St. and Lehigh Ave., Philadelphia 25	NPCorp	445	9,594	Req	45	12	No	150FM	12 Rotating General	62311
Frankford Hospital +1-3 4940 Frankford Ave., Philadelphia 24	NPCorp	188	7,806	Req	60	12	No	225FM	8 Rotating General	62411
Germantown Dispensary and Hospital +1-X69-x72 E. Penn and Wister Sts., Philadelphia 44	NPCorp	313	9,698	Req	51	12	No	150FM	12 Rotating General	62511
Graduate Hospital of the University of Pennsylvania +1-3-4 19th and Lombard Sts., Philadelphia 46	NPCorp	350	8,137	Req	60	12	240	75FM	12 Rotating General	62611
Hahnemann Medical College and Hospital +1-X68 230 N. Broad St., Philadelphia 2	NPCorp	537	14,897	Req	55	12	No	50FM	24 Rotating General	62711
Hospital of the University of Pennsylvania +1-4-X71.... 3400 Spruce S	NPCorp	810	21,153	Req	73	12	No	42FM	32 Rotating General	62811
Hospital of the Pennsylvania · X. 3300 Henry Ave., Philadelphia 29	NPCorp	206	6,497	Req	62	12	No	100FM	8 Rotating General	62911
Jefferson Medical College Hospital +3-4-X69 10th and Sansom Sts., Philadelphia 7	NPCorp	956	21,219	Req	55	12	No	50FM	40 Rotating General	63011
Lankenau Hospital +1-X69 Lancaster and City Line, Philadelphia 31	NPCorp	335	10,557	Req	58	12	No	175FM	12 Rotating General	63211
Memorial Hospital 1-3-x72 3800 Ridge Ave., P	NPCorp	149	4,918	Req	35	12	241	250FM	6 Rotating General	63311
Methodist Episcopal Broad and Wolf	Church	229	6,326	Req	40	12	No	150FM	8 Rotating General	63511
Misericordia Hospital +1 54th and Cedar Ave., Philadelphia 43	Church	251	9,226	Req	46	12	No	200FM	10 Rotating General	63611
Nazareth Hospital +1 8850 Holme Ave., Philadelphia 15	Church	208	9,027	Req	61	12	242	200FM	8 Rotating General	63811

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PENNSYLVANIA—Continued										
Northeastern Hospital 1 Allegheny Ave. and Tulip St., Philadelphia 34	NPCorp	150	4,652	Req	32	12	244	400FM	4 Rotating General	[illegible]
Pennsylvania Hospital +1-3-X69-71 8th and Spruce Sts., Philadelphia 7	NPCorp	409	12,822	Req	61	12	243	FM	18 Rotating General	[illegible]
Philadelphia General Hospital +1-3-4-X68-69-70-71-72 34th St. and Curie Ave., Philadelphia 4	City	1,693	21,508	Req	52	12	No	59FM	108 Rotating General	[illegible]
Presbyterian Hospital +1-4-X71 51 N. 39th St., Philadelphia 4	Church	326	8,727	Req	62	12	No	100FM	12 Rotating General	[illegible]
St. Agnes Hospital 1-x68 1900 S. Broad St., Philadelphia 45	Church	243	8,378	Req	41	12	No	250FM	10 Rotating General	[illegible]
St. Joseph's Hospital +1-3-4 16 St. and Girard Ave., Philadelphia 30	Church	200	5,809	Req	54	12	No	300FM	6 Rotating General	[illegible]
St. Luke's and Children's Medical Center +1-x68. Franklin and Thompson Sts., Philadelphia 22	NPCorp	242	7,508	Req	24	12	No	250FM	8 Rotating General	[illegible]
*Temple University Hospital +1-3-X70 3401 N. Broad St., Philadelphia 40	NPCorp	600	16,158	Req	55	12	244	25FM	36 Rotating General	.....
Allegheny General Hospital +1-4 320 E. North Ave., Pittsburgh 12	NPCorp	586	11,057	Req	41	12	No	182FM	18 Rotating General	[illegible]
Health Center Hospitals of the University of Pittsburgh School of Medicine +1-3-X73 3941 O'Hara St., Pittsburgh 13	NPCorp	1,211	36,393	Req	64	12	245	100FM	20 Rotating General	[illegible]
Mercy Hospital +1-3-X73 1400 Locust St., Pittsburgh 19	NPCorp	655	16,976	Req	38	12	No	210PM	12 Rotating General	[illegible]
Montefiore Hospital +1-3-4 3459 5th Ave., Pittsburgh 13	NPCorp	321	9,513	Req	41	12	No	200FM	12 Rotating General	[illegible]
Pittsburgh Hospital +1-3 6655 Frankstown Ave., Pittsburgh 6	NPCorp	225	7,201	Req	32	12	No	200FM	6 Rotating General	[illegible]
St. Francis General Hospital and Rehabilitation Institute +1-4-X73 408 45th St., Pittsburgh 1	NPCorp	683	15,121	Req	42	12	No	200FM	18 Rotating General	[illegible]
St. Joseph's Hospital and Dispensary 1-3 2117 Carson St., Pittsburgh 3	Church	170	5,354	Req	40	12	No	350FM	6 Rotating General	[illegible]
Shadyside Hospital +1-3 5230 Centre Ave., Pittsburgh 32	NPCorp	363	8,479	Req	58	12	No	300PM	10 Rotating General	[illegible]
South Side Hospital +1-3-4 S. 20th and Jane Sts., Pittsburgh 3	NPCorp	375	9,939	Req	36	12	No	275FM	9 Rotating General	[illegible]
Western Pennsylvania Hospital +1-3-4 4800 Friendship Ave., Pittsburgh 24	NPCorp	552	15,972	Req	50	12	No	200FM	18 Rotating General	[illegible]
Community General Hospital +1-3 145 N. 6th St., Reading	NPCorp	174	6,267	Req	38	12	No	250FM	5 Rotating General	[illegible]
Reading Hospital +1 6th and Spruce Sts., Reading	NPCorp	482	13,781	Req	57	12	No	200FM	14 Rotating General	[illegible]
St. Joseph's Hospital +1-3 1215 Walnut St., Reading	Church	208	7,013	Req	43	12	No	250FM	6 Rotating General	
Robert Packer Hospital +1-3-X68 S. Wilbur Ave., Sayre	NPCorp	340	12,077	Req	60	12	No	150FM	10 Rotating General	
Scranton State Hospital +1 201 Mulberry St., Scranton	State	200	6,125	Req	27	12	No	205FM	10 Rotating General	
Sewickley Valley Hospital 1-3 Blackburn Rd., Sewickley	NPCorp	230	7,614	Req	34	12	No	275FM	6 Rotating General	
Sharon General Hospital + 740 E. State St., Sharon	NPCorp	285	10,586	Req	31	12	No	100FM	5 Rotating General	
Allegheny Valley Hospital 1 1300 Carlisle St., Tarentum	NPCorp	220	8,736	Req	35	12	246	225FM	6 Rotating General	- -
Uniontown Hospital 1-3 500 W. Berkeley St., Uniontown	NPCorp	281	8,512	Req	32	12	No	300FM	5 Rotating General	[illegible]
Washington Hospital 1 155 Wilson Ave., Washington	NPCorp	315	6,826	Req	25	12	No	250FM	8 Rotating General	[illegible]
Chester County Hospital +1 500 E. Marshall St., West Chester	NPCorp	195	4,918	Req	47	12	No	250FM	6 Rotating General	[illegible]
Mercy Hospital +1-3-4 196 Hanover St., Wilkes-Barre	NPCorp	191	7,547	Req	35	12	No	300FM	6 Rotating General	[illegible]
Wilkes-Barre General Hospital +1 N. River and Auburn Sts., Wilkes-Barre	NPCorp	376	9,717	Req	31	12	No	225FM	10 Rotating General	[illegible]
Columbia Hospital +1 312 Penn Ave., Wilkinsburg 21	NPCorp	188	6,763	Req	37	12	No	300FM	6 Rotating General	[illegible]
Divine Providence Hospital 1-3 1100 Grampian Blvd., Williamsport	Church	185	6,229	Req	38	12	No	200FM	4 Rotating General	[illegible]
Williamsport Hospital +1 777 Rural Ave., Williamsport 20	NPCorp	312	9,710	Req	38	12	No	200FM	8 Rotating General	[illegible]
York Hospital +1 S. George St. and Rathton Rd., York	NPCorp	347	12,885	Req	43	12	No	200FM	10 Rotating General	[illegible]
RHODE ISLAND—Hospitals, 6; Internships, 60										
Newport Hospital +1-3 Friendship St., Newport	NPCorp	216	5,830	Req	20	12	No	100-150FM	6 Rotating General	[illegible]
Memorial Hospital +1-3 Prospect St., Pawtucket	NPCorp	220	8,037	Req	37	12	No	200FM	8 Rotating General	[illegible]
Miriam Hospital +1-3 164 Summit Ave., Providence 6	NPCorp	150	6,091	Req	35	12	169	200FM	8 Rotating General	[illegible]
Rhode Island Hospital +1-3-4 593 Eddy St., Providence 2	NPCorp	627	16,452	Req	48	24	247	75FM	18 Rotating General	[illegible]
Roger Williams General Hospital 3 825 Chalkstone Ave., Providence 8	NPCorp	211	7,814	Req	33	12	No	200FM	8 Rotating General	[illegible]
St. Joseph's Hospital 1-3-4 21 Peace St., Providence 7	Church	310	8,036	Req	32	12	167	150FM	12 Rotating General	[illegible]
SOUTH CAROLINA—Hospitals, 6; Internships, 98										
Medical College of South Carolina Teaching Hospitals (Roper Hospital, 300 Calhoun St., Medical College Hospital, 55 Doughty St.) +1-X74 Charleston 16	NPCorpState	796	14,860	Req	66	12	No	125FM	30 Rotating General	[illegible]
Columbia Hospital of Richland County +1-3 2020 Hampton St., Columbia 4	County	444	14,216	Req	32	12	No	150FM	18 Rotating General	[illegible]
McLeod Infirmary +1-3 121 W. Cheves St., Florence	NPCorp	202	9,759	Req	29	12	No	200FM	5 Rotating General	[illegible]
Greenville General Hospital +1-3 100 Mallard St., Greenville	CyCo	540	19,703	Req	41	12	No	225	24 Rotating General	[illegible]
Orangeburg Regional Hospital +1-3 550 Carolina Ave. N.E., Orangeburg	County	215	7,526	Req	27	12	No	200FM	6 Rotating General	[illegible]

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SOUTH CAROLINA—Continued										
artanburg General Hospital *1 555 N. Church St., Spartanburg	County	370	16,237	Req	28	12	No	150FM	15 Rotating General	68511
SOUTH DAKOTA—Hospitals, 3; Internships, 23										
Kennan Hospital 1-3-X75 800 E. 21st St., Sioux Falls	Church	190	7,472	None	36	12	No	150FM	7 Rotating General	68611
ux Valley Hospital *1-3-X75 1123 S. Euclid Ave., Sioux Falls	NPCorp.	210	9,635	None	42	12	No	150FM	10 Rotating General	68711
cred Heart Hospital *1-3-X75 W. 4th St., Yankton	Church	208	5,295	Req	48	12	No	150FM	6 Rotating General	68811
TENNESSEE—Hospitals, 15; Internships, 257										
roness Erlanger Hospital *1-3-4 241 Wiehl St., Chattanooga 3	CyCo	580	17,427	Req	43	12	No	200FM	18 Rotating General 2 Mixed (Ob.-Surg.-Med.)	68911 68969
olston Valley Community Hospital 1-3 W. Ravine St., Kingsport	NPCorp	245	12,094	Req	39	12	No	250FM	8 Rotating General	.....
st Tennessee Baptist Hospital *1-3 201 Blount Ave., Knoxville 10	Church	254	12,711	Req	40	12	248	200FM	12 Rotating General	69011
rt Sanders Presbyterian Hospital 1-3 1909 W. Clinch Ave., Knoxville 16	Church	189	9,558	Req	39	12	No	200FM	7 Rotating General	69111
. Mary's Memorial Hospital *1-3 Oak Hill Ave., Knoxville 17	Church	270	10,687	Req	40	12	248	225-300FM	12 Rotating General	69311
niversity of Tennessee Memorial Research Center and Hospital *1-3-4 Alcoa Hwy., Knoxville	State	252	....	Req	44	12	No	128FM	17 Rotating General	.....
ptist Memorial Hospital *1-3 899 Madison Ave., Memphis 3	Church	772	27,855	Req	41	12	249	125FM	20 Rotating General	69411
ity of Memphis Hospitals *1-3-4-X76 (John Gaston Hospital) 860 Madison Ave., Memphis 3	City	530	21,349	Req	55	12	No	75-100FM	48 Rotating General	.....
thodist Hospital * 1265 Union Ave., Memphis 4	Church	290	14,102	Req	35	12	250	125FM	12 Rotating General	69611
t. Joseph Hospital *1 264 Jackson Ave., Memphis 5	Church	280	13,405	Req	56	12	No	150FM	12 Rotating General	.....
ptist Hospital *1-3 2000 Church St., Nashville 3	Church	284	14,203	Req	40	12	251	150FM	16 Rotating General	69911
orge W. Hubbard Hospital *1-3-4-X77 1005 18th Ave. N., Nashville 8	Church	197	5,455	Req	54	12	No	100FM	14 Rotating General	69811
ashville General Hospital *1-3 Hermitage Ave., Nashville 10	City	230	5,609	Req	38	12	No	160FM	12 Rotating General	.....
. Thomas Hospital *1-3 2000 Hayes St., Nashville 4	Church	227	9,696	Req	29	12	252	175FM	6 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Mixed (Med.-Surg.) 1 Mixed (Ob.-Gyn.-Surg.) 1 Mixed (Ob.-Gyn.-Med.)	70111 70132 70133 70124 70126 70109
anderbilt University Hospital *1-3-X78 21st Ave. S. at Edgehill, Nashville 5	NPCorp	375	12,529	Req	54	12	No	25FM	12 Straight Medicine 12 Straight Surgery 7 Straight Pediatrics 2 Straight Pathology	70232 70233 70234 70236
TEXAS—Hospitals, 23; Internships, 358										
rackenridge Hospital *1-x80 15th St and East Ave., Austin 1	City	300	7,843	Req	46	12	No	150FM	13 Rotating General	70411
emorial Hospital 1 2606 Hospital Blvd., Corpus Christi	CyCo	252	10,404	Req	26	12	253	100FM	5 Rotating General	70511
aylor University Hospital *1-3-x79 3500 Gaston Ave., Dallas 10	Church	588	29,353	Req	40	12	254	115FM	18 Rotating General 1 Straight Medicine 1 Straight Surgery	70611 70632 70633
hildren's Medical Center *1-3-4-X79 2[illegible]6 Welborn St., Dallas 19	NPCorp	154	3,800	Req	72	12	113	50FM	3 Straight Pediatrics	95534
ethodist Hospital *1-3-x79 301 W. Colorado Blvd., Dallas 22	Church	288	16,546	Req	38	12	No	175FM	12 Rotating General	70711
arkland Memorial Hospital *1-4-X79 5201 Harry Hines Blvd., Dallas 19	Dist	783	13,136	Req	52	12	No	100	24 Rotating General 8 Straight Medicine	70811 70832
t. Paul's Hospital *1-3-x79 3121 Bryan St., Dallas 4	Church	395	18,492	Req	47	12	No	100FM	14 Rotating General 1 Straight Medicine 1 Rot. (Med. Major) 1 Rot. (Surg. Major)	70911 70932 70912 70913
l Paso General Hospital 1-3 4815 Alameda Ave., El Paso	CyCo	230	3,850	Req	71	12	No	150FM	8 Rotating General	71011
otel D'eu, Sisters' Hospital *3 1014 N. Stanton St., El Paso	Church	218	9,292	Req	41	12	No	150FM	6 Rotating General	95411
arris Hospital *1-3 1300 W. Cannon St., Fort Worth 4	Church	406	18,675	Req	40	12	No	200FM	16 Rotating General	71211
ohn Peter Smith Hospital *1-3-4 1500 S. Main St., Fort Worth 4	CyCo	200	4,654	Req	50	12	No	50FM	13 Rotating General	71111
t. Joseph's Hospital *1-3 1401 S. Main St., Fort Worth 4	Church	300	13,822	Req	41	12	No	200FM	18 Rotating General	71311
niversity of Texas Medical Branch Hospitals *1-3-X80 8th and Mechanic Sts., Galveston	State	918	12,432	Req	59	12	No	110FM	36 Rotating General	71411
aylor University College of Medicine Hospitals, Houston										
Jefferson Davis Hospital *1-3-4-X81 1801 Buffalo Dr., Houston 3	CyCo	438	14,964	Req	59	12	255	50FM	30 Rotating General 4 Straight Medicine 4 Straight Surgery 4 Straight Pediatrics	71611 71632 71633 71634
Methodist Hospital *1-3-X81 6516 Bertner Ave., Houston 25	Church	304	14,265	Req	63	12	256	195	8 Rotating General 2 Straight Medicine 2 Straight Surgery	71711 71732 71733
Hermann Hospital *1-X81 1203 Ross Sterling Ave., Houston 25	NPCorp	625	27,176	Req	42	12	No	75FM	18 Rotating General	71511
emorial Hospital *1-3 602 Lamar Ave., Houston 2	Church	425	20,225	Req	40	12	No	150PM	20 Rotating General	95211
t. Joseph's Hospital *3 1910 Crawford St., Houston 3	Church	422	22,184	Req	41	12	No	100-150FM	6 Rotating General	71811
aptist Memorial Hospital *1-3-x80 215 Camden St., San Antonio 2	Church	282	16,882	Req	37	12	No	100-150FM	8 Rotating General	72111
obert B. Green Memorial Hospital *1-3-4-x80 515 Morales St., San Antonio 7	Dist	300	9,648	Req	48	12	No	100FM	29 Rotating General	72211

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.
Abbreviations and other references will be found on pages 482 and 483.

TEXAS—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Santa Rosa Hospital +$^{1-3}$ 745 W. Houston St., San Antonio 7	Church	400	15,290	Req	52	12	No	200FM	12 Rotating General	[illegible]
Scott and White Memorial Hospitals +$^{1-3}$ 213 W. Ave. G., Temple	NPCorp	201	7,507	Req	48	12	257	200FM	8 Rotating General	[illegible]
Providence Hospital $^{1-3}$ 1725 Colcord Ave., Waco	Church	200	7,077	Req	34	12	258	200FM	4 Rotating General	[illegible]

UTAH– Hospitals, 6; Internships, 75

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
St. Benedict's Hospital +$^{1-3}$ 3000 Polk Ave., Ogden	Church	170	5,515	Req	64	12	No	200PM	9 Rotating General	[illegible]
Thomas D. Dee Memorial Hospital +^{1}-x82 2410 Harrison Blvd., Ogden	Church	226	9,472	Req	42	12	259	250PM	8 Rotating General	[illegible]
Dr. W. H. Groves Latter-Day Saints Hospital +^{1}-x82 325 8th Ave., Salt Lake City 3	Church	350	18,494	Req	43	12	No	175FM	16 Rotating General	[illegible]
Holy Cross Hospital +^{1}-x82 1045 E. 1st South St., Salt Lake City 2	Church	192	9,202	Req	52	12	No	150FM	6 Rotating General	[illegible]
St. Mark's Hospital +$^{1-3}$-x82 803 N. 2nd West St., Salt Lake City 16	Church	250	10,475	Req	32	12-24	No	150FM	4 Rot. General (12 mo) 6 Rot. General (24 mo)	[illegible]
Salt Lake County General Hospital +^{1}-X82 2033 S. State St., Salt Lake City 15	County	228	4,005	Req	68	12	260	100FM	14 Rotating General 8 Straight Medicine 4 Straight Pediatrics	[illegible]

VERMONT—Hospitals, 2; Internships, 20

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
De Goesbriand Memorial Hospital +$^{1-3}$-X83 1 S. Prospect St., Burlington	Church	226	6,131	Req	48	12	No	100FM	8 Rotating General	[illegible]
Mary Fletcher Hospital +$^{1-3-4}$-X83 Colchester Ave., Burlington	NPCorp	218	7,264	Req	72	12	No	50FM	12 Rotating General	[illegible]

VIRGINIA—Hospitals, 16; Internships, 194

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Alexandria Hospital +$^{1-3}$ 705 Duke St., Alexandria	NPCorp	201	9,909	Req	39	12	No	175PM	8 Rotating General	[illegible]
University of Virginia Hospital +^{1}-X84 Charlottesville	State	500	14,765	Req	56	12	261	75FM	12 Rotating General 12 Straight Medicine 8 StraightSurgery	[illegible]
Chesapeake and Ohio Hospital +$^{1-3}$ Ridgeway St., Clifton Forge	NPCorp	210	7,067	Req	57	12	No	175FM	2 Straight Medicine	[illegible]
Memorial Hospital +$^{1-3}$ 142 S. Main St., Danville	NPCorp	275	12,922	Req	46	12	No	300FM	10 Rotating General	[illegible]
Lynchburg General Hospital +$^{1-3}$ Tate Springs Rd., Lynchburg	NPCorp	248	6,687	Req	44	12	262	150FM	2 Rotating General	[illegible]
Mary Immaculate Hospital ^{3} Blair and Buxton Aves., Newport News	Church	150	5,969	Req	45	12	No	150FM	5 Rotating General	[illegible]
Riverside Hospital +^{1} 245 50th St., Newport News	NPCorp	244	8,798	Req	32	12	No	200FM	9 Rotating General	[illegible]
De Paul Hospital +$^{1-3}$ Kingsley Lane and Granby St., Norfolk 5	Church	250	12,348	Req	60	12	No	150PM	12 Rotating General	[illegible]
Norfolk General Hospital +$^{1-3}$ Raleigh and Colley Aves., Norfolk 7	NPCorp	301	12,487	Req	40	12	No	100-160FM	10 Rotating General 1 Rot. (Med. Major) 1 Rot. (Surg. Major) 1 Rot. (Ped. Major) 1 Rot. (Ob.-Gyn. Major)	[illegible]
Johnston-Willis Hospital +^{1} 2908 Kensington Ave., Richmond 21	Corp	235	8,155	Req	51	12	263	200FM	12 Rotating General	[illegible]
Medical College of Virginia Hospital Division +$^{1-3-4}$-X85 (Memorial, Dooley and St. Philip Hospitals) 1200 E. Broad St., Richmond 19	State	882	27,839	Req	49	12	No	75FM	40 Rotating General 6 Straight Medicine 8 Straight Surgery	[illegible]
Stuart Circle Hospital $^{1-3}$ 415 Stuart Circle, Richmond 20	Corp	150	4,478	Req	50	12	264	250FM	6 Rotating General	[illegible]
Jefferson Hospital +$^{1-3}$ 1313 Franklin Rd., S.W., Roanoke 16	Corp	151	6,031	Req	46	12	No	150FM	4 Mixed (Surg.-Med.-Ob.)	[illegible]
Lewis-Gale Hospital +$^{1-3}$ 3rd St. and Luck Ave., S.W., Roanoke 11	Corp	180	6,382	Req	32	12	No	225FM	6 Rotating General	[illegible]
Roanoke Memorial Hospital $^{1-3}$ Belleview and Lake Aves., Roanoke 11	NPCorp	325	9,826	Req	50	12	No	250FM	12 Rotating General	[illegible]
Winchester Memorial Hospital ^{1} S. Stewart St., Winchester	NPCorp	254	9,119	Req	42	12	No	250FM	6 Rotating General	[illegible]

WASHINGTON—Hospitals, 12; Internships, 148

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Doctors Hospital +$^{1-3}$-x86 909 University St., Seattle 1	NPCorp	187	9,758	None	57	12	265	200FM	8 Rotating General	[illegible]
King County Hospital +$^{1-4}$-X86 Unit No. 1 (Harborview) 325 9th Ave., Seattle 4	County	450	11,121	Req	61	12	No	90FM	30 Rotating General 4 Straight Medicine	[illegible]
Providence Hospital +^{1}-x86 17 and E. Jefferson St., Seattle 22	Church	355	14,779	Req	56	12	No	140-175FM	16 Rotating General	[illegible]
Seattle General Hospital $^{1-3}$ 5th Ave. and Marion St., Seattle 4	NPCorp	116	4,887	Req	38	12	265	150FM	5 Rotating General	[illegible]
Swedish Hospital +$^{1-3}$-x86 1212 Columbia St. Seattle 4	NPCorp	570	15,933	Req	52	12	265	125-200FM	16 Rotating General	[illegible]
Virginia Mason Hospital +$^{1-3}$-x86 1111 Terry Ave. Seattle 1	NPCorp	217	10,313	Req	77	12	265	125FM	10 Rotating General	[illegible]
Deaconess Hospital +$^{1-3}$ 733 W. 4th Ave., Spokane 4	Church	255	10 432	Req	41	12	No	200FM	12 Rotating General	[illegible]
Sacred Heart Hospital +^{3} 101 8th Ave., Spokane 4	Church	489	23,316	Req	41	12	No	200FM	15 Rotating General	[illegible]
St. Luke's Hospital +$^{1-3}$ N. 830 Summit Blvd., Spokane 11	NPCorp	284	7,903	....	41	12	No	200FM	8 Rotating General	[illegible]
Pierce County Hospital ^{1} 3582 Pacific Ave., Tacoma 8	County	205	4,769	Req	38	12	No	200FM	10 Rotating General	[illegible]
St. Joseph Hospital +$^{1-3}$ 1812 S. Eye St., Tacoma 1	Church	219	8,941	Req	46	12	No	230FM	6 Rotating General	[illegible]
Tacoma General Hospital +$^{1-3}$ 315 S. K St., Tacoma 5	NPCorp	215	9,132	....	35	12	266	150-250FM	8 Rotating General	[illegible]

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Abbreviations and other references will be found on pages 482 and 483.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
WEST VIRGINIA—Hospitals, 9; Internships, 82										
Charleston General Hospital +$^{1-3}$ Brooks St. and Elmwood Ave., Charleston 25	NPCorp	240	9,593	Req	45	12	No	200FM	10 Rotating General	76411
Kanawha Valley Hospital +^{3} 1014 Virginia St. E., Charleston 1	Corp	150	5,442	Req	26	12	No	130FM	6 Rotating General	76511
Memorial Hospital +$^{1-3}$ 3200 Noyes Ave. S.E., Charleston 4	NPCorp	249	9,711	Req	57	12	No	200FM	10 Rotating General	90211
Cabell Huntington Hospital ^{1} 1340 16th St., Huntington 3	NPCorp	237	....	Req	28	12	No	200FM	8 Rotating General	97611
St. Mary's Hospital +$^{1-3}$ 2900 1st Ave., Huntington 2	Church	339	13,800	Req	40	12	No	200-250FM	14 Rotating General	76611
Camden-Clark Memorial Hospital +^{3} 717 Ann St., Parkersburg	City	195	5,929	Req	27	12	No	150FM	4 Rotating General	76711
St. Joseph's Hospital +^{3} 1801 Market St., Parkersburg	Church	195	8,373	Req	35	12	No	150FM	6 Rotating General	94411
Ohio Valley General Hospital +$^{1-3}$ 2000 Eoff St., Wheeling	NPCorp	266	10,025	Req	41	12	No	250PM	14 Rotating General	76911
Wheeling Hospital $^{1-3}$ 109 Main St., Wheeling	Church	245	8,772	Req	32	12	No	200FM	10 Rotating General	77011
WISCONSIN—Hospitals, 23; Internships, 244										
Luther Hospital +$^{1-3}$ 310 Chestnut St., Eau Claire	NPCorp	226	8,296	Req	63	12	No	200FM	6 Rotating General	77111
St. Agnes Hospital $^{1-3}$ 430 E. Division St., Fond du Lac	Church	230	11,120	Req	30	12	No	125FM	6 Rotating General	98311
Mercy Hospital +$^{1-3}$ 566 N. Washington St., Janesville	Church	225	6,421	Req	37	12	No	200FM	5 Rotating General	77311
La Crosse Lutheran Hospital +$^{1-3}$ 1910 South Ave., La Crosse	Church	185	6,582	Req	55	12	No	200FM	4 Rotating General	77411
St. Francis Hospital $^{1-3}$ 709 S. 10th St., La Crosse	Church	247	9,555	Req	47	12	No	200FM	7 Rotating General	77511
Madison General Hospital +$^{1-3}$-x87 925 Mound St., Madison 5	NPCorp	360	11,338	Req	55	12	No	125-200FM	14 Rotating General	77611
Methodist Hospital +$^{1-3}$-x87 309 W. [illegible]	Church	143	4,963	Req	50	12	No	200FM	4 Rotating General	77711
St. Mary's [illegible] 720 S. E[illegible]	Church	250	9,853	....	41	12	No	160-200FM	10 Rotating General	77811
University Hospitals +$^{1-3}$-X87 1300 University Ave., Madison 6	State	838	14,109	Req	81	12	No	75FM	25 Rotating General	77911
St. Joseph's Hospital +^{1} 611 St. Joseph's Ave., Marshfield	Church	252	8,079	Req	57	12	No	250FM	7 Rotating General	78011
Columbia Hospital +$^{1-3}$ 3321 N. Maryland Ave., Milwaukee 11	NPCorp	259	7,786	Req	75	12	267	195PM	10 Rotating General	78111
Evangelical Deaconess Hospital +$^{1-3}$ 620 N. 19th St., Milwaukee 3	Church	220	8,422	Req	53	12	268	200FM	14 Rotating General	78211
Milwaukee Children's Hospital +$^{1-3-4}$-X88 721 N. 17th St., Milwaukee 3	NPCorp	160	5,960	Req	84	12	269	150FM	2 Straight Pediatrics	78334
Milwaukee County Hospital +$^{1-3-4}$-X88 8700 W. Wisconsin Ave., Milwaukee 13	County	950	21,119	Req	38	12	270	141PM	50 Rotating General	78411
Milwaukee Hospital +$^{1-3}$-x88 2200 W. Kilbourn Ave., Milwaukee 3	Church	341	11,009	Req	61	12	271	220PM	9 Rotating General	78511
Misericordia Hospital ^{3} 1255 N. 22nd St., Milwaukee 5	Church	175	8,326	Req	52	12	272	200FM	6 Rotating General	89711
Mount Sinai Hospital +$^{1-3}$ 908 N. 12th St., [illegible]	NPCorp	197	8,938	Req	29	12	273	200FM	12 Rotating General	78711
St. Joseph's [illegible] +^{1}-x[illegible] 5000 W. C[illegible]	Church	371	15,900	Req	46	12	274	210PM	12 Rotating General	78811
St. Luke's Hospital +$^{1-3}$ 2900 W. Oklahoma Ave., Milwaukee 15	NPCorp	299	12,924	Req	48	12	275	200FM	15 Rotating General	78911
St. Mary's Hospital +^{3} 2320 N. Lake Dr., Milwaukee 11	Church	200	7,961	Req	53	12	276	150FM	10 Rotating General	79011
St. Michael Hospital +$^{1-3}$ W. Villard Ave. and N. 25th St., Milwaukee 12	Church	225	5,517	Req	40	12	277	150FM	8 Rotating General	79111
Mercy Hospital ^{1} 155 Hazel St., Oshkosh	Church	250	7,903	None	23	12	No	150PM	4 Rotating General	79311
St. Mary's Hospital $^{1-3}$ Maple Hill, Wausau	Church	230	8,651	Req	41	12	No	200FM	4 Rotating General	79511
CANAL ZONE—Hospitals, 1; Internships, 15										
Gorgas Hospital + Balboa Heights Personnel Director, Panama Canal Company, Balboa Heights	Fed	352	8,940	Req	87	12	No	3140.80 (annual)	15 Rotating General	80611
HAWAII—Hospitals, 3; Internships, 38										
*Kuakini Hospital $^{1-3}$ 347 N. Kuakini St., Honolulu 17	NPCorp	140	8,955	Req	52	24	278	50-175FM	12 Rotating General	.....
Queen's Hospital +^{1} 1301 Punchbowl St., Honolulu 9	NPCorp	387	14,264	Req	62	12	No	100FM	14 Rotating General	80811
St. Francis Hospital +$^{1-3}$ 2200 Liliha St., Honolulu 17	Church	224	8,285	Req	53	12	No	75FM	12 Rotating General	80911
PUERTO RICO—Hospitals, 8; Internships, 105										
*Aguadilla District Hospital ^{1} Aguadilla	State	280	5,960	Req	80	12	No	75FM	12 Rotating General	.....
*Arecibo District Hospital ^{1} Lares Rd., Arecibo	State	289	6,663	Req	72	12	No	75FM	15 Rotating General	.....
*Bayamon District Hospital +$^{1-3}$-x89 Insular Highway No. 2, Bayamon	State	280	7,564	Req	52	12	No	75FM	16 Rotating General	.....
*Fajardo District Hospital $^{1-3}$ General Valero Ave., Fajardo	State	280	5,875	Req	45	12	No	75FM	12 Rotating General	.....
*Hospital de Damas $^{1-3}$ Concordia St., Ponce	Church	153	5,283	Req	39	12	No	100FM	7 Rotating General	.....
*Rio Piedras Municipal Hospital $^{1-3}$ Pineiro St., Rio Piedras	City	205	7,005	Req	41	12	No	75FM	13 Rotating General	.....
*Presbyterian Hospital $^{1-3}$-x89 Ashford Ave., San Juan 1	NPCorp	132	4,217	Req	34	12	No	50FM	6 Rotating General	.....
*San Juan City Hospital +$^{1-3}$-X89 De Diego Ave., San Juan 34	City	540	10,576	Req	38	12	No	75FM	24 Rotating General	.....

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TEXAS—Continued									
Santa Rosa Hospital +1-3 715 W. Houston St., San Antonio 7	Church	400	15,290	Req	52	12	No	200FM	12 Rotating General
Scott and White Memorial Hospitals +1-3 213 W. Ave. G., Temple	NPCorp	201	7,507	Req	48	12	257	200FM	8 Rotating General
Providence Hospital 1-3 1725 Colcord Ave., Waco	Church	200	7,077	Req	34	12	258	200FM	4 Rotating General
UTAH—Hospitals, 6; Internships, 75									
St. Benedict's Hospital +1-3 3000 Polk Ave., Ogden	Church	170	6,515	Req	64	12	No	200PM	9 Rotating General
Thomas D. Dee Memorial Hospital +1-x82 2410 Harrison Blvd., Ogden	Church	226	9,472	Req	42	12	259	250PM	8 Rotating General
Dr. W. H. Groves Latter-Day Saints Hospital +1-x82 325 8th Ave., Salt Lake City 3	Church	350	18,194	Req	43	12	No	175FM	16 Rotating General
Holy Cross Hospital +1-x82 1045 E. 1st South St., Salt Lake City 2	Church	192	9,202	Req	52	12	No	150FM	6 Rotating General
St. Mark's Hospital +1-3-x82 803 N. 2nd West St., Salt Lake City 16	Church	250	10,475	Req	32	12-24	No	150FM	4 Rot. General (12 mo 6 Rot. General (24 mo
Salt Lake County General Hospital +1-X82 2033 S. State St., Salt Lake City 15	County	225	4,005	Req	68	12	260	100FM	14 Rotating General 8 Straight Medicine 4 Straight Pediatrics
VERMONT—Hospitals, 2; Internships, 20									
De Goesbriand Memorial Hospital +1-3-X83 1 S. Prospect St., Burlington	Church	226	6,131	Req	48	12	No	100FM	8 Rotating General
Mary Fletcher Hospital +1-3-4-X83 Colchester Ave., Burlington	NPCorp	218	7,264	Req	72	12	No	50FM	12 Rotating General
VIRGINIA—Hospitals, 16; Internships, 194									
Alexandria Hospital +1-3 789 Duke St., Alexandria	NPCorp	201	9,909	Req	39	12	No	175PM	8 Rotating General
University of Virginia Hospital +1-X84 Charlottesville	State	600	14,765	Req	56	12	261	75FM	12 Rotating General 12 Straight Medicine 8 Straight Surgery
Chesapeake and Ohio Hospital +1-3 Ridgeway St., Clifton Forge	NPCorp	210	7,067	Req	57	12	No	175FM	2 Straight Medicine
Memorial Hospital +1-3 142 S. Main St., Danville	NPCorp	275	12,022	Req	46	12	No	300FM	10 Rotating General
Lynchburg General Hospital +1-3 Tate Springs Rd., Lynchburg	NPCorp	248	6,687	Req	44	12	262	150FM	2 Rotating General
Mary Immaculate Hospital 3 Blair and Buxton Aves., Newport News	Church	156	5,969	Req	45	12	No	150FM	5 Rotating General
Riverside Hospital +1 215 50th St., Newport News	NPCorp	211	8,798	Req	32	12	No	200FM	9 Rotating General
De Paul Hospital +1-3 Kingsley Lane and Granby St., Norfolk 5	Church	259	12,318	Req	60	12	No	150PM	12 Rotating General
Norfolk General Hospital +1-3 Raleigh and Colley Aves., Norfolk 7	NPCorp	301	12,187	Req	40	12	No	100-160FM	10 Rotating General 1 Rot. (Med. Major) 1 Rot. (Surg. Major) 1 Rot. (Ped. Major) 1 Rot. (Ob.-Gyn. Major)
Johnston-Willis Hospital +1 2908 Kensington Ave., Richmond 21	Corp	235	8,155	Req	51	12	263	200FM	12 Rotating General
Medical College of Virginia Hospital Division +1-3-4-X85 (Memorial, Dooley and St. Philip Hospitals) 1200 E. Broad St., Richmond 19	State	882	27,839	Req	49	12	No	75FM	40 Rotating General 6 Straight Medicine 8 Straight Surgery
Stuart Circle Hospital 1-3 415 Stuart Circle, Richmond 20	Corp	150	4,478	Req	50	12	264	250FM	6 Rotating General
Jefferson Hospital +1-3 1313 Franklin Rd., S.W., Roanoke 16	Corp	151	6,031	Req	46	12	No	150FM	4 Mixed (Surg.-Med.-Ob.)
Lewis-Gale Hospital +1-3 3rd St. and Luck Ave., S.W., Roanoke 11	Corp	180	6,389	Req	32	12	No	225FM	6 Rotating General
Roanoke Memorial Hospital 1-3 Bellevlew and Lake Aves., Roanoke 14	NPCorp	325	9,826	Req	50	12	No	250FM	12 Rotating General
Winchester Memorial Hospital 1 S. Stewart St., Winchester	NPCorp	251	9,119	Req	42	12	No	250FM	6 Rotating General
WASHINGTON—Hospitals, 12; Internships, 148									
Doctors Hospital +1-3-x86 909 University St., Seattle 1	NPCorp	187	9,758	None	57	12	265	200FM	8 Rotating General
King County Hospital +1-4-X86 Unit No. 1 (Harborview) 325 9th Ave., Seattle 4	County	450	11,121	Req	61	12	No	90FM	30 Rotating General 4 Straight Medicine
Providence Hospital +1-x86 17 and E. Jefferson St., Seattle 22	Church	355	14,779	Req	56	12	No	140-175FM	16 Rotating General
Seattle General Hospital 1-3 5th Ave. and Marion St., Seattle 4	NPCorp	316	4,887	Req	38	12	265	150FM	5 Rotating General
Swedish Hospital +1-3-x86 1212 Columbia St. Seattle 1	NPCorp	570	15,948	Req	52	12	265	125-200FM	16 Rotating General
Virginia Mason Hospital +1-3-x86 1111 Terry Ave. Seattle 1	NPCorp	217	10,343	Req	77	12	265	125FM	10 Rotating General
Deaconess Hospital +1-3 733 W. 4th Ave., Spokane 4	Church	255	10,432	Req	41	12	No	200FM	12 Rotating General
Sacred Heart Hospital +3 101 8th Ave., Spokane 4	Church	189	23,316	Req	41	12	No	200FM	15 Rotating General
St. Luke's Hospital +1-3 N. 830 Summit Blvd., Spokane 11	NPCorp	284	7,903	....	41	12	No	200FM	8 Rotating General
Pierce County Hospital 1 3582 Pacific Ave., Tacoma 8	County	205	4,769	Req	38	12	No	200FM	10 Rotating General
St. Joseph Hospital +1-3 1812 S. Eye St., Tacoma 1	Church	219	8,941	Req	46	12	No	230FM	6 Rotating General
Tacoma General Hospital +1-3 315 S. K St., Tacoma 5	NPCorp	215	9,132	....	35	12	266	150-250FM	8 Rotating General

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WEST VIRGINIA—Hospitals, 9; Internships, 82										
arleston General Hospital +[1-3] Brooks St and Elmwood Ave, Charleston 25	NPCorp	240	9,593	Req	45	12	No	200FM	10 Rotating General	76411
nawha Valley Hospital +[3] 1014 Virginia St E, Charleston 1	Corp	150	5,442	Req	26	12	No	130FM	6 Rotating General	76511
emorial Hospital +[1-3] 3200 Noyes Ave S.E., Charleston 4	NPCorp	249	9,711	Req	37	12	No	200FM	10 Rotating General	90211
tell Huntington Hospital [1] 1340 13th St, Huntington 3	NPCorp	237	....	Req	23	12	No	200FM	8 Rotating General	97611
. Mary's Hospital +[1-3] 2900 1st Ave, Huntington 2	Church	339	13 800	Req	40	12	No	200-250FM	14 Rotating General	76611
amden Clark Memorial Hospital +[3] 717 Ann St, Parkersburg	City	195	5,929	Req	27	12	No	150FM	4 Rotating General	76711
. Joseph's Hospital +[3] 1[illegible]1 Market St, Parkersburg	Church	195	8,373	Req	35	12	No	150FM	6 Rotating General	94411
o Valley General Hospital +[1-3] 2000 Eoff St, Wheeling	NPCorp	266	10,025	Req	41	12	No	250PM	14 Rotating General	76911
heeling Hospital [1-3] 109 Main St, Wheeling	Church	245	8,772	Req	32	12	No	200FM	10 Rotating General	77011
WISCONSIN—Hospitals, 23; Internships, 244										
uther Hospital +[1-3] 310 Chestnut St, Eau Claire	NPCorp	226	8,296	Req	63	12	No	200FM	6 Rotating General	77111
. Agnes Hospital [1-3] 430 E Division St, Fond du Lac	Church	230	11,120	Req	30	12	No	125FM	6 Rotating General	98311
ercy Hospital +[1-3] 66 N Washington St, Janesville	Church	225	6,421	Req	37	12	No	200FM	5 Rotating General	77311
a Crosse Lutheran Hospital +[1-3] 1910 South Ave, La Crosse	Church	185	6,582	Req	55	12	No	200FM	4 Rotating General	77411
Francis Hospital [1-3] 709 S 10th St, La Crosse	Church	247	9,555	Req	47	12	No	200FM	7 Rotating General	77511
adison General Hospital +[1-3]-x87 925 Mound St, Madison 5	NPCorp	360	11,338	Req	55	12	No	125-200FM	14 Rotating General	77611
ethodist Hospital +[1-3]-x87 309 W Washington Ave, Madison 3	Church	143	4,963	Req	50	12	No	200FM	4 Rotating General	77711
t Mary's Hospital +[1-3]-x87 720 S Brooks St, Madison 5	Church	250	9,853	....	41	12	No	160-200FM	10 Rotating General	77811
niversity Hospitals +[1-3]-X87 1300 University Ave, Madison 6	State	838	14,109	Req	81	12	No	75FM	25 Rotating General	77911
t Joseph's Hospital +[1] 611 St Joseph's Ave, Marshfield	Church	252	8,079	Req	57	12	No	250FM	7 Rotating General	78011
olumbia Hospital +[1-3] 3321 N Maryland Ave, Milwaukee 11	NPCorp	259	7,786	Req	75	12	267	195PM	10 Rotating General	78111
vangelical Deaconess Hospital +[1-3] 620 N 19th St., Milwaukee 3	Church	220	8,422	Req	53	12	268	200FM	14 Rotating General	78211
ilwaukee Children's Hospital +[1-3-4]-X88 721 N 17th St, Milwaukee 3	NPCorp	160	5,960	Req	84	12	269	150FM	2 Straight Pediatrics	78334
ilwaukee County Hospital +[1-3-4]-X88 8700 W. Wisconsin Ave, Milwaukee 13	County	950	21,119	Req	38	12	270	141PM	50 Rotating General	78411
ilwaukee Hospital +[1-3]-x88 2200 W. Kilbourn Ave, Milwaukee 3	Church	341	11,009	Req	61	12	271	220PM	9 Rotating General	78511
isericordia Hospital [3] 1255 N. 22nd St, Milwaukee 5	Church	175	8,326	Req	52	12	272	200FM	6 Rotating General	89711
ount Sinai Hospital +[1-3] 948 N 12th St, Milwaukee 3	NPCorp	197	8,938	Req	29	12	273	200FM	12 Rotating General	78711
t Joseph's Hospital +[1]-x88 5000 W. Chambers St, Milwaukee 10	Church	371	15,900	Req	46	12	274	210PM	12 Rotating General	78811
t Luke's Hospital +[1-3] 2900 W. Oklahoma Ave, Milwaukee 15	NPCorp	299	12,924	Req	48	12	275	200FM	15 Rotating General	78911
t Mary's Hospital +[3] 2320 N Lake Dr., Milwaukee 11	Church	200	7,961	Req	53	12	276	150FM	10 Rotating General	79011
t Michael Hospital +[1-3] W. Villard Ave and N. 25th St., Milwaukee 12	Church	225	5,517	Req	40	12	277	150FM	8 Rotating General	79111
ercy Hospital [1] 185 Hazel St, Oshkosh	Church	250	7,903	None	23	12	No	150PM	4 Rotating General	79311
t Mary's Hospital [1-3] Maple Hill, Wausau	Church	230	8,651	Req	41	12	No	200FM	4 Rotating General	79511
CANAL ZONE—Hospitals, 1; Internships, 15										
orgas Hospital + Balboa Heights Personnel Director, Panama Canal Company, Balboa Heights	Fed	352	8,940	Req	87	12	No	3140.80 (annual)	15 Rotating General	80611
HAWAII—Hospitals, 3; Internships, 38										
Kuakini Hospital [1-3] 347 N Kuakini St, Honolulu 17	NPCorp	140	8,955	Req	52	24	278	50-175FM	12 Rotating General	.....
Queen's Hospital +[1] 1301 Punchbowl St, Honolulu 9	NPCorp	387	14,264	Req	62	12	No	100FM	14 Rotating General	80811
St Francis Hospital +[1-3] 2200 Liliha St., Honolulu 17	Church	224	8,285	Req	53	12	No	75FM	12 Rotating General	80911
PUERTO RICO—Hospitals, 8; Internships, 105										
*Aguadilla District Hospital [1] Aguadilla	State	280	5,960	Req	80	12	No	75FM	12 Rotating General	.....
*Arecibo District Hospital [1] Lares Rd, Arecibo	State	289	6,663	Req	72	12	No	75FM	15 Rotating General	.....
*Bayamon District Hospital +[1-3]-x89 Insular Highway No. 2, Bayamon	State	280	7,561	Req	52	12	No	75FM	16 Rotating General	.....
*Fajardo District Hospital [1-3] General Valero Ave, Fajardo	State	280	5,875	Req	45	12	No	75FM	12 Rotating General	.....
*Hospital de Damas [1-3] Concordia St, Ponce	Church	153	5,283	Req	39	12	No	100FM	7 Rotating General	.....
*Rio Piedras Municipal Hospital [1-3] Pineiro St, Rio Piedras	City	205	7,005	Req	41	12	No	75FM	13 Rotating General	.....
*Presbyterian Hospital [1-3]-x89 Ashford Ave, San Juan 1	NPCorp	132	4,217	Req	34	12	No	50FM	6 Rotating General	.....
*San Juan City Hospital +[1-3]-X89 De Diego Ave, San Juan 34	City	540	10,576	Req	38	12	No	75FM	24 Rotating General	.....

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the Medical Association, the American Hospital Association, the Association of American Medical Co [illegible] and other cooperating organizations. Abbreviations and other references will be found on pages 482 and 483.

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

The following list of hospitals that conform to the standards of the Canadian Medical Association is published for the information of [illegible] interested in an internship appointment in a Canadian hospital. Hospitals that are unqualifiedly approved as conforming to the standards [illegible] Canadian Medical Association may be considered as offering internships equivalent in educational value to those in hospitals approved [illegible] training by the Council.

This list, revised to Sept. 1, 1956, was furnished by the Canadian Medical Association.

Name of Hospital	Location
Royal Columbian Hosp.	New Westminster, B. C.
Trail-Tada[illegible]	Trail, B. C.
St. Paul's [illegible]	[illegible]uver, B. C.
Vancouver [illegible]	[illegible]ouver, B. C.
Royal Jubi[illegible]	[illegible]toria, B. C.
St. Joseph's Hospital	Victoria, B. C.
Calgary General Hospital	Calgary, Alta.
Holy Cross Hospital	Calgary, Alta.
Edmonton General Hospital	Edmonton, Alta.
Misericordia Hospital	Edmonton, Alta.
Royal Alexandra Hospital	Edmonton, Alta.
University of Alberta Hosp.	Edmonton, Alta
St. Michael's General Hosp.	Lethbridge, Alta.
Regina General Hospital	Regina, Sask.
St. Paul's Hospital	Saskatoon, Sask.
Saskatoon City Hospital	Saskatoon, Sask.
University Hospital	Saskatoon, Sask.
St. Boniface General Hosp.	St. Boniface, Man
[illegible]	Winnipeg, Man.
[illegible]	Winnipeg, Man
[illegible]	Winnipeg, Man
McKeller G[illegible]	[illegible], Ont.
Hamilton [illegible]	[illegible] Ont.
St. Joseph[illegible]	[illegible] Ont.
Kingston General H[illegible]	[illegible] Ont.
Kitchener-Waterloo [illegible]	[illegible], Ont.
St. Joseph's Hospital	London, Ont.
Victoria [illegible]	[illegible] Ont
Ottawa [illegible]	[illegible] Ont
Ottawa General Hospital	Ottawa, Ont.
General Hosp. of Port Arthur	Port Arthur, Ont.
St. Catherines Gen. Hosp.	St. Catherines, Ont.
St. Joseph's Hospital	Sarnia, Ont.
Sudbury General Hospital	Sudbury, Ont.
New Mount Sinai Hospital	Toronto, Ont.
St. Joseph's Hospital	Toronto, Ont.
St. Michael's Hospital	Toronto, Ont.
Toronto East General and Orthopaedic Hospital	Toronto, Ont.
Toronto General Hospital	Toronto, Ont
Toronto Western Hospital	Toronto, Ont.
Women's College Hospital	Toro[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Jewish General [illegible]	Montreal [illegible]
[illegible]	[illegible]
Hotel Dieu [illegible]	[illegible]
Hotel Dieu [illegible]	[illegible]
Hospital Gener[illegible]	[illegible]
Jeffery Hale's Hospital	Q[illegible]
Reddy Memorial Hosp (Westmount)	[illegible]
Vic[illegible]	[illegible]
Mo[illegible]	[illegible]
Saint Jo[illegible]	[illegible]
Victoria [illegible] Hospital	Halifax [illegible]
Halifax Infirmary	Halifax [illegible]
St. John's General Hospital	St. John's [illegible]

ABBREVIATIONS AND NOTES

1. Appointments available to women applicants
2. Appointments restricted to women applicants
3. Appointments available to graduates of foreign medical schools. Details regarding requirements for appointment can be secured from the hospitals concerned.
4. Dental internships available
5. Available to citizens of the United States only

+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships

CyCo	City and County
Corp	Corporation unrestricted as to profit
Dist	Hospital District
NPCorp	Nonprofit corporation
Part	Partnership
Req	Required
FM	Full maintenance
PM	Partial maintenance

Medical School Affiliations

Footnotes 10 to 89 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships.

Hospitals have been identified with symbol **X** when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with symbol **x** when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program

10 Medical College of Alabama, Birmingham, Ala
11. University of Arkansas School of Medicine, Little Rock, Ark.
12. College of Medical Evangelists School of Medicine, Loma Linda, Los Angeles
13 University of California School of Medicine, Los Angeles
14. University of Southern California School of Medicine, Los Angeles
15 Stanford University School of Medicine, San Francisco
16 University of California School of Medicine, San Francisco
17. University of Colorado School of Medicine, Denver
18. Yale University School of Medicine, New Haven, Conn
19 Georgetown University School of Medicine, Washington, D. C
20 George Washington University School of Medicine, Washington, D C
21 Howard University College of Medicine, Washington, D C
22. University of Miami School of Medicine, Miami, Fla
23 Emory University School of Medicine, Atlanta (Emory University), Ga.
24 Medical College of Georgia, Augusta, Ga
25 Chicago Medical School, Chicago
26. Northwestern University Medical School, Chicago
27. Stritch School of Medicine of Loyola University, Chicago
28. University of Chicago, The School of Medicine, Chicago
29 University of Illinois College of Medicine, Chicago
30. Indiana University School of Medicine, Bloomington-Indianapolis, Ind
31. State University of Iowa College of Medicine, Iowa City
32. University of Kansas School of Medicine, Lawrence Kansas City, Kan
33. University of Louisville School of Medicine, Louisville, Ky
34. Louisiana State University School of Medicine, New Orleans
35 Tulane University of Louisiana School of Medicine, New Orleans
36. Johns Hopkins University School of Medicine, Baltimore
37. University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore
38 Boston University School of Medicine, Boston
39. Harvard Medical School, Boston
40. Tufts University School of Medicine, Boston
41. University of Michigan Medical School, Ann Arbor, Mich
42. Wayne State University College of Medicine, Detroit
43. University of Minnesota Medical School, Minneapolis
44. University of Mississippi School of Medicine, University, Miss
45 St. Louis University School of Medicine, St. Louis
46 Washington University School of Medicine, St. Louis
47. Creighton University School of Medicine, Omaha
48. University of Nebraska College of Medicine, Omaha
49. Dartmouth Medical School, Hanover, N H
50. Albany Medical College, Albany, N. Y.
51 University of Buffalo School of Medicine, Buffalo
52. Albert Einstein College of Medicine, New York City
53 Columbia University College of Physicians and Surgeons, New York City
54. Cornell University Medical College, New York City
55 New York Medical College, Flower and Fifth Avenue Hospitals, New York City
56. New York University College of Medicine, New York City
57. State University of New York College of Medicine, New York City
58 University of Rochester School of Medicine and Dentistry, Rochester, N. Y.
59. State University of New York College of Medicine, Syracuse N Y
60. University of North Carolina School of Medicine, Chapel Hill N C
61. Duke University School of Medicine, Durham, N. C
62. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.
63. University of Cincinnati College of Medicine, Cincinnati
64. Western Reserve University School of Medicine, Cleveland
65. Ohio State University College of Medicine, Columbus, Ohio
66. University of Oklahoma School of Medicine, Oklahoma City
67. University of Oregon Medical School, Portland, Ore.
68. Hahnemann Medical College and Hospital, Philadelphia
69 Jefferson Medical College, Philadelphia
70. Temple University School of Medicine, Philadelphia
71. University of Pennsylvania School of Medicine, Philadelphia
72. Woman's Medical College of Pennsylvania, Philadelphia
73 University of Pittsburgh School of Medicine, Pittsburgh
74. Medical College of South Carolina, Charleston, S C.
75. University of South Dakota School of Medical Sciences, Vermillion, S D.
76. University of Tennessee College of Medicine, Memphis, Tenn
77. Meharry Medical College, Nashville, Tenn
78 Vanderbilt University School of Medicine, Nashville, Tenn
79 University of Texas Southwestern Medical School, Dallas, Texas
80. University of Texas Medical Branch, Galveston, Texas
81. Baylor University College of Medicine, Houston, Texas
82. University of Utah School of Medicine, Salt Lake City
83. University of Vermont College of Medicine, Burlington, Vt
84. University of Virginia School of Medicine, Charlottesville, Va
85. Medical College of Virginia, Richmond, Va
86. University of Washington School of Medicine, Seattle
87. University of Wisconsin Medical School, Madison, Wis
88. Marquette University School of Medicine, Milwaukee, Wis
89. University of Puerto Rico School of Medicine, San Juan, P. R

Affiliations as Referred to in Column Headed: "Affiliated Service"

100. U. S. Army Hospital, Fort Belvoir, Va.; U. S. Air Force Hospital, Washington, D. C.
101. U. S. Army Hospital, Fort Dix, N. J.
102. St. Joseph's Hospital, Children's Hospital, San Francisco
103. Charity Hospital of Louisiana, New Orleans
104. University Hospital, Baltimore
105. U. S. Naval Hospital, Portsmouth, Va.
106. U. S. Army Hospital, Seattle; Navajo Medical Center, Fort Defiance, Ariz.
107. District of Columbia General Hospital, Washington, D. C.
108. Los Angeles County Hospital, Los Angeles, obstetrics; Harbor General Hospital, Torrance, Calif., pediatrics
109 Los Angeles C[illegible] University of California Hospital [illegible] Angeles; Ha[illegible] Torrance, Calif
110 Grady Memor[illegible] Ga.
111. University of [illegible] Oklahoma City
112. Children's Med[illegible] Memorial Hospital, Dallas, Texas
113. Parkland Mem[illegible] Texas
114. Salt Lake Co[illegible] Salt Lake City
115. Children's Hospital, Birmingham, Ala.
116. Crippled Children's Clinic and Hospital, Children's Hospital, Veterans Administration Hospital, Birmingham, Ala
117. Maricopa County General Hospital, Phoenix, Ariz
118. Pima County General Hospital, Tucson, Ariz

NONFEDERAL—Continued

eal Memorial Hospital	Berwyn, Ill
rancis Hospital	Blue Island, Ill.
rican Hospital	Chicago
ustana Hospital	Chicago
ago Wesley Memorial Hospital	Chicago
mbus Hospital	Chicago
k County Hospital	Chicago
ewater Hospital	Chicago
lewood Hospital	Chicago
ngelical Hospital	Chicago
nt Hospital	Chicago
pital of St. Anthony de Padua	Chicago
ois Central Hospital	Chicago
ois Masonic Hospital	Chicago
kson Park Hospital	Chicago
etto Hospital	Chicago
heran Deaconess Home and Hospital	Chicago
ry Hospital	Chicago
hael Reese Hospital	Chicago
nt Sinai Hospital	Chicago
wegian-American Hospital	Chicago
ssavant Memorial Hospital	Chicago
sbyterian Hospital	Chicago
vident Hospital	Chicago
venswood Hospital	Chicago
urrection Hospital	Chicago
eland Community Hospital	Chicago
Bernard's Hospital	Chicago
Elizabeth Hospital	Chicago
Joseph Hospital	Chicago
Luke's Hospital	Chicago
Mary of Nazareth Hospital	Chicago
uth Chicago Community Hospital	Chicago
uth Shore Hospital	Chicago
edish Covenant Hospital	Chicago
iversity of Chicago Clinics	Chicago
iversity of Illinois Research and Educational Hospitals	Chicago
alther Memorial Hospital	Chicago
oodlawn Hospital	Chicago
catur and Macon County Hospital	Decatur, Ill.
Mary's Hospital	East St. Louis, Ill.
emorial Hospital of DuPage County	Elmhurst, Ill.
anston Hospital	Evanston, Ill.
Francis Hospital	Evanston, Ill.
ttle Company of Mary Hospital	Evergreen Park, Ill.
ak Park Hospital	Oak Park, Ill.
est Suburban Hospital	Oak Park, Ill.
ethodist Hospital of Central Illinois	Peoria, Ill.
Francis Hospital	Peoria, Ill.
ockford Memorial Hospital	Rockford, Ill.
Anthony's Hospital	Rockford, Ill.
edish-American Hospital	Rockford, Ill.
t. Catherine Hospital	East Chicago, Ind.
rotestant Deaconess Hospital	Evansville, Ind.
t. Mary's Hospital	Evansville, Ind.
utheran Hospital	Fort Wayne, Ind.
arkview Memorial Hospital	Fort Wayne, Ind.
t. Joseph Hospital	Fort Wayne, Ind
ethodist Hospital	Gary, Ind.
t. Mary's Mercy Hospital	Gary, Ind.
t. Margaret Hospital	Hammond, Ind.
ndianapolis General Hospital	Indianapolis
ndiana University Medical Center	Indianapolis
Methodist Hospital	Indianapolis
St. Vincent's Hospital	Indianapolis
St. Elizabeth Hospital	Lafayette, Ind.
Ball Memorial Hospital	Muncie, Ind.
Memorial Hospital	South Bend, Ind.
St. Joseph's Hospital	South Bend, Ind.
Mercy Hospital	Cedar Rapids, Iowa
St. Luke's Methodist Hospital	Cedar Rapids, Iowa
Mercy Hospital	Council Bluffs, Iowa
Broadlawns Polk County Hospital	Des Moines, Iowa
Iowa Lutheran Hospital	Des Moines, Iowa
Iowa Methodist Hospital	Des Moines, Iowa
Mercy Hospital	Des Moines, Iowa
Mercy Hospital	Iowa City
State University of Iowa Hospitals	Iowa City
Bethany Hospital	Kansas City, Kan.
St. Margaret's Hospital	Kansas City, Kan.
University of Kansas Medical Center	Kansas City, Kan.
St. Francis Hospital	Wichita, Kan.
Wesley Hospital	Wichita, Kan.
Wichita-St. Joseph Hospital	Wichita, Kan.
St. Elizabeth Hospital	Covington, Ky.
Good Samaritan Hospital	Lexington, Ky.
St. Joseph Hospital	Lexington, Ky.
Kentucky Baptist Hospital	Louisville, Ky.
Louisville General Hospital	Louisville, Ky
Norton Memorial Infirmary	Louisville, Ky.
St Anthony Hospital	Louisville, Ky.
St. Joseph Infirmary	Louisville, Ky.
SS. Mary and Elizabeth Hospital	Louisville, Ky.
Charity Hospital of Louisiana	New Orleans
Hotel Dieu	New Orleans
Mercy Hospital	New Orleans
Southern Baptist Hospital	New Orleans

NONFEDERAL—Continued

Touro Infirmary	New Orleans
Confederate Memorial Medical Center	Shreveport, La.
North Louisiana Sanitarium	Shreveport, La.
Eastern Maine General Hospital	Bangor, Maine
Central Maine General Hospital	Lewiston, Maine
St. Mary's General Hospital	Lewiston, Maine
Maine Medical Center	Portland, Maine
Baltimore City Hospitals	Baltimore
Bon Secours Hospital	Baltimore
Church Home and Hospital	Baltimore
Franklin Square Hospital	Baltimore
Lutheran Hospital	Baltimore
Maryland General Hospital	Baltimore
Mercy Hospital	Baltimore
Provident Hospital and Free Dispensary	Baltimore
St. Agnes Hospital	Baltimore
St. Joseph's Hospital	Baltimore
Sinai Hospital	Baltimore
South Baltimore General Hospital	Baltimore
Union Memorial Hospital	Baltimore
University Hospital	Baltimore
Suburban Hospital	Bethesda, Md.
Prince George's General Hospital	Cheverly, Md.
Washington County Hospital	Hagerstown, Md.
Beverly Hospital	Beverly, Mass.
Carney Hospital	Boston
New England Hospital	Boston
St. Elizabeth Hospital	Boston
Brockton Hospital	Brockton, Mass.
Cambridge City Hospital	Cambridge, Mass.
Mount Auburn Hospital	Cambridge, Mass.
Truesdale Hospital	Fall River, Mass.
Union Hospital	Fall River, Mass.
Holyoke Hospital	Holyoke, Mass.
Lawrence General Hospital	Lawrence, Mass.
Lowell General Hospital	Lowell, Mass.
St. John's Hospital	Lowell, Mass.
St. Joseph's Hospital	Lowell, Mass.
Lynn Hospital	Lynn, Mass.
St Luke's Hospital	New Bedford, Mass.
Newton-Wellesley Hospital	Newton Lower Falls, Mass.
St. Luke's Hospital	Pittsfield, Mass.
Quincy City Hospital	Quincy, Mass.
Salem Hospital	Salem, Mass.
Mercy Hospital	Springfield, Mass.
Springfield Hospital	Springfield, Mass.
Wesson Memorial Hospital	Springfield, Mass.
Waltham Hospital	Waltham, Mass.
Memorial Hospital	Worcester, Mass.
St Vincent Hospital	Worcester, Mass.
Worcester City Hospital	Worcester, Mass.
St. Joseph's Mercy Hospital	Ann Arbor, Mich.
Leila Y. Post Montgomery Hospital	Battle Creek, Mich.
Mercy Hospital	Benton Harbor, Mich.
Oakwood Hospital	Dearborn, Mich.
Detroit Memorial Hospital	Detroit
Evangelical Deaconess Hospital	Detroit
Grace Hospital	Detroit
Harper Hospital	Detroit
Henry Ford Hospital	Detroit
Mount Carmel Mercy Hospital	Detroit
Providence Hospital	Detroit
Receiving Hospital	Detroit
St. John Hospital	Detroit
St. Joseph Mercy Hospital	Detroit
Sinai Hospital	Detroit
Woman's Hospital	Detroit
Wayne County General Hospital and Infirmary	Eloise, Mich.
Hurley Hospital	Flint, Mich.
McLaren General Hospital	Flint, Mich.
St. Joseph Hospital	Flint, Mich.
Blodgett Memorial Hospital	Grand Rapids, Mich.
Butterworth Hospital	Grand Rapids, Mich.
St. Mary's Hospital	Grand Rapids, Mich.
Bon Secours Hospital	Grosse Point, Mich.
Highland Park General Hospital	Highland Park, Mich.
Borgess Hospital	Kalamazoo, Mich.
Bronson Methodist Hospital	Kalamazoo, Mich.
Edward W. Sparrow Hospital	Lansing, Mich.
St. Lawrence Hospital	Lansing, Mich.
Midland Hospital	Midland, Mich.
Pontiac General Hospital	Pontiac, Mich.
St. Joseph Mercy Hospital	Pontiac, Mich.
William Beaumont Hospital	Royal Oak, Mich.
Saginaw General Hospital	Saginaw, Mich.
St. Luke's Hospital	Saginaw, Mich.
St. Mary's Hospital	Saginaw, Mich.
James Decker Munson Hospital	Traverse City, Mich.
St. Luke's Hospital	Duluth, Minn.
St. Mary's Hospital	Duluth, Minn.
Asbury Methodist Hospital	Minneapolis
Minneapolis General Hospital	Minneapolis
Mount Sinai Hospital	Minneapolis
Northwestern Hospital	Minneapolis
St. Barnabas Hospital	Minneapolis
St. Mary's Hospital	Minneapolis
Swedish Hospital	Minneapolis

APPROVED INTERNSHIPS BY TYPE OF SERVICE

ROTATING GENERAL

Number of Approved Programs, 810

FEDERAL

UNITED STATES ARMY

Letterman Army Hospital	San Francisco
Fitzsimons Army Hospital	Denver
Walter Reed Army-Hospital (Army Medical Center)	Washington, D. C.
U. S. Army Hospital	Fort Benning, Ga.
Valley Forge Army Hospital	Phoenixville, Pa.
William Beaumont Army Hospital	El Paso, Texas
Brooke Army Hospital, Fort Sam Houston	San Antonio, Texas
Madigan Army Hospital	Tacoma, Wash.
Tripler Army Hospital	Honolulu, T. H.

UNITED STATES AIR FORCE

U. S. Air Force Hospital (Lackland Air Force Base)	San Antonio, Texas

UNITED STATES NAVY

U. S. Naval Hospital	Oakland, Calif.
U. S. Naval Hospital	Oceanside, Calif
U. S. Naval Hospital	San Diego, Calif.
U. S. Naval Hospital	Jacksonville, Fla.
U. S. Naval Hospital	Pensacola, Fla.
U. S. Naval Hospital	Great Lakes, Ill.
U. S. Naval Hospital	Bethesda, Md.
U. S. Naval Hospital	Chelsea, Mass.
U. S. Naval Hospital	St. Albans, N. Y.
U. S. Naval Hospital	Philadelphia
U. S. Naval Hospital	Newport, R. I.
U. S. Naval Hospital	Charleston, S. C.
U. S. Naval Hospital	Portsmouth, Va.
U. S. Naval Hospital	Bremerton, Wash.

U. S. PUBLIC HEALTH SERVICE

U. S. Public Health Service Hospital	San Francisco
U. S. Public Health Service Hospital	New Orleans
U. S. Public Health Service Hospital	Baltimore
U. S. Public Health Service Hospital	Staten Island, N. Y.
U. S. Public Health Service Hospital	Norfolk, Va
U. S. Public Health Service Hospital	Seattle

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Freedmen's Hospital	Washington, D. C
Saint Elizabeths Hospital	Washington, D. C

VETERANS ADMINISTRATION

Veterans Admin. Hospital	Long Beach, Calif
Veterans Admin. Center	Los Angeles
Veterans Admin. Hospital	Salt Lake City

NONFEDERAL

Birmingham Baptist Hospital	Birmingham, Ala
Carraway Methodist Hospital	Birmingham, Ala.
St. Vincent's Hospital	Birmingham, Ala.
South Highlands Infirmary	Birmingham, Ala.
University Hospital and Hillman Clinic	Birmingham, Ala.
Lloyd Noland Hospital	Fairfield, Ala.
Holy Name of Jesus Hospital	Gadsden, Ala
Mobile County Hospital	Mobile, Ala
Druid City Hospital	Tuscaloosa, Ala.
Good Samaritan Hospital	Phoenix, Ariz.
Maricopa County General Hospital	Phoenix, Ariz.
St. Joseph's Hospital	Phoenix, Ariz
St. Mary's Hospital and Sanatorium	Tucson, Ariz
Tucson Medical Center	Tucson, Ariz
Arkansas Baptist Hospital	Little Rock, Ark
St. Vincent's Infirmary	Little Rock, Ark.
University Hospital	Little Rock, Ark
General Hospital of Riverside County	Arlington, Calif.
Herrick Memorial Hospital	Berkeley, Calif.
San Joaquin General Hospital	French Camp, Calif.
General Hospital of Fresno County	Fresno, Calif.
Glendale Sanitarium and Hospital	Glendale Calif.
Loma Linda Sanitarium and Hospital	Loma Linda, Calif.
St. Mary's Long Beach Hospital	Long Beach, Calif.
Seaside Memorial Hospital	Long Beach, Calif.
California Hospital	Los Angeles
Cedars of Lebanon Hospital	Los Angeles
Hospital of the Good Samaritan	Los Angeles
Los Angeles County Hospital	Los Angeles
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Queen of Angels Hospital	Los Angeles
Santa Fe Coast Lines Hospital	Los Angeles
White Memorial Hospital	Los Angeles

NONFEDERAL—Continued

Highland-Alameda County Hospital	Oakland, Cal
Kaiser Foundation Hospital	Oakland, Cal
Orange County Gen	Orange, Cal
Collis P. and Howa	Pasadena, Cal
Sacramento County Hospital	Sacramento, Cal
San Bernardino County Charity Hospital	San Bernardino, Cal
Mercy Hospital	San Diego, Cal
San Diego County General Hospital	San Diego, Cal
Children's Hospital	San Fra
Franklin Hospital	San Fra
French Hospital	San Fra
Kaiser Foundation Hospital	San Fra
Mary's Help Hospital	San Fra
Mount Zion Hospital	San Fra
St. Luke's Hospital	San Fra
St. Mary's Hospital	San Fra
San Francisco Hospital	San Fra
Southern Pacific General Hospital	San Fra
University of California Hospitals	San Fra
Santa Clara County Hospital	San Jose, Cal
Santa Barbara Cottage Hospital	Santa Barbara, Cal
St. John's Hospital	Santa Monica, Cal
Santa Monica Hospital	Santa Monica, Cal
Harbor General Hospital	Torrance, Cal
Glockner-Penrose Hospital	Colorado Springs, Col
General Rose Memorial Hospital	De
Mercy Hospital	De
Porter Sanitarium and Hospital	De
Presbyterian Hospital	De
St. Anthony Hospital	De
St. Joseph's Hospital	De
St. Luke's Hospital	Den
University of Colorado Medical Center	
Colorado General Hospital	Denv
Denver General Hospital	Denv
Weld County General Hospital	Greeley, C
Bridgeport Hospital	Bridgeport, Con
St. Vincent's Hospital	Bridgeport, Con
Bristol Hospital	Bristol, Con
Danbury Hospital	Danbury, Con
Griffin Hospital	Derby, Con
Greenwich Hospital	Greenwich, Con
Hartford Hospital	Hartford, Con
Hartford Municipal Hospital and Health Center	Hartford, Con
Mount Sinai Hospital	Hartford, Con
St. Francis Hospital	Hartford, Con
Manchester Memorial Hospital	Manchester, Con
Meriden	Meriden, Con
Middlesex	Middletown, Con
New Britain General Hospital	New Britain, Con
Hospital of St. Raphael	New Haven, Con
Lawrence and Memorial Hospitals	New London, Con
Norwalk Hospital	Norwalk, Con
William W. Backus Hospital	Norwich, Con
Stamford Hospital	Stamford, Con
St. Mary's Hospital	Waterbury, Con
Waterbury Hospital	Waterbury, Con
Delaware Hospital	Wilmington, De
Memorial Hospital	Wilmington, De
Wilmington General Hospital	Wilmington, De
District of Columbia General Hospital	Washington, D C
Doctors Hospital	Washington, D C
Providence Hospital	Washington, D C
Washington Hospital Center	Washington, D C
Washington Sanitarium and Hospital	Washington, D C
Baptist Memorial Hospital	Jacksonville, Fa
Duval Medical Center	Jacksonville, Fa
St. Luke's Hospital	Jacksonville, Fa
St. Vincent's Hospital	Jacksonville, Fa
Jackson Memorial Hospital	Miami, Fa
Mount Sinai Hospital of Greater Miami	Miami Beach, Fa
St. Francis Hospital	Miami Beach, Fa
Orange Memorial Hospital	Orlando, Fa
Sacred Heart Hospital	Pensacola, Fa
Mound Park Hospital	St. Petersburg, Fa
Tampa General Hospital	Tampa, Fa
St. Mary's Hospital	West Palm Beach, Fa
Athens General Hospital	Athens, Ga
St. Mary's Hospital	Athens, Ga
Crawford W. Long Memorial Hospital	Atlanta, Ga
Georgia Baptist Hospital	Atlanta, Ga
Grady Memorial Hospital	Atlanta, Ga
Piedmont Hospital	Atlanta, Ga
St. Joseph's Infirmary	Atlanta, Ga
University Hospital	Augusta, Ga
Medical Center	Columbus, Ga
Macon Hospital	Macon, Ga
Memorial Hospital of Chatham County	Savannah, Ga

NONFEDERAL—Continued

l Memorial Hospital	Berwyn, Ill.
ncis Hospital	Blue Island, Ill.
an Hospital	Chicago
ana Hospital	Chicago
o Wesley Memorial Hospital	Chicago
bus Hospital	Chicago
County Hospital	Chicago
ater Hospital	Chicago
rood Hospital	Chicago
dical Hospital	Chicago
Hospital	Chicago
tal of St. Anthony de Padua	Chicago
s Central Hospital	Chicago
s Masonic Hospital	Chicago
on Park Hospital	Chicago
to Hospital	Chicago
ran Deaconess Home and Hospital	Chicago
Hospital	Chicago
el Reese Hospital	Chicago
t Sinai Hospital	Chicago
egian-American Hospital	Chicago
rant Memorial Hospital	Chicago
yterian Hospital	Chicago
dent Hospital	Chicago
nswood Hospital	Chicago
rection Hospital	Chicago
and Community Hospital	Chicago
ernard's Hospital	Chicago
lizabeth Hospital	Chicago
oseph Hospital	Chicago
uke's Hospital	Chicago
fary of Nazareth Hospital	Chicago
h Chicago Community Hospital	Chicago
h Shore Hospital	Chicago
dish Covenant Hospital	Chicago
ersity of Chicago Clinics	Chicago
ersity of Illinois Research and Educational Hospitals	Chicago
ther Memorial Hospital	Chicago
dlawn Hospital	Chicago
tur and Macon County Hospital	Decatur, Ill.
Mary's Hospital	East St. Louis, Ill.
orial Hospital of DuPage County	Elmhurst, Ill.
nston Hospital	Evanston, Ill.
Francis Hospital	Evanston, Ill.
le Company of Mary Hospital	Evergreen Park, Ill.
Park Hospital	Oak Park, Ill.
t Suburban Hospital	Oak Park, Ill.
hodist Hospital of Central Illinois	Peoria, Ill.
Francis Hospital	Peoria, Ill.
kford Memorial Hospital	Rockford, Ill.
Anthony's Hospital	Rockford, Ill.
dish-American Hospital	Rockford, Ill.
Catherine Hospital	East Chicago, Ind.
testant Deaconess Hospital	Evansville, Ind.
Mary's Hospital	Evansville, Ind.
theran Hospital	Fort Wayne, Ind.
rkview Memorial Hospital	Fort Wayne, Ind.
Joseph Hospital	Fort Wayne, Ind.
thodist Hospital	Gary, Ind.
Mary's Mercy Hospital	Gary, Ind.
Margaret Hospital	Hammond, Ind.
lianapolis General Hospital	Indianapolis
diana University Medical Center	Indianapolis
thodist Hospital	Indianapolis
. Vincent's Hospital	Indianapolis
. Elizabeth Hospital	Lafayette, Ind.
ll Memorial Hospital	Muncie, Ind.
emorial Hospital	South Bend, Ind.
. Joseph's Hospital	South Bend, Ind.
ercy Hospital	Cedar Rapids, Iowa
. Luke's Methodist Hospital	Cedar Rapids, Iowa
ercy Hospital	Council Bluffs, Iowa
roadlawns Polk County Hospital	Des Moines, Iowa
owa Lutheran Hospital	Des Moines, Iowa
owa Methodist Hospital	Des Moines, Iowa
ercy Hospital	Des Moines, Iowa
lercy Hospital	Iowa City
tate University of Iowa Hospitals	Iowa City
ethany Hospital	Kansas City, Kan.
t. Margaret's Hospital	Kansas City, Kan.
niversity of Kansas Medical Center	Kansas City, Kan.
t. Francis Hospital	Wichita, Kan.
esley Hospital	Wichita, Kan.
ichita-St. Joseph Hospital	Wichita, Kan.
t. Elizabeth Hospital	Covington, Ky.
ood Samaritan Hospital	Lexington, Ky.
St. Joseph Hospital	Lexington, Ky.
Kentucky Baptist Hospital	Louisville, Ky.
Louisville General Hospital	Louisville, Ky.
Norton Memorial Infirmary	Louisville, Ky.
St Anthony Hospital	Louisville, Ky.
St. Joseph Infirmary	Louisville, Ky.
SS. Mary and Elizabeth Hospital	Louisville, Ky.
Charity Hospital of Louisiana	New Orleans
Hotel Dieu	New Orleans
Mercy Hospital	New Orleans
Southern Baptist Hospital	New Orleans
Touro Infirmary	New Orleans
Confederate Memorial Medical Center	Shreveport, La.
North Louisiana Sanitarium	Shreveport, La.
Eastern Maine General Hospital	Bangor, Maine
Central Maine General Hospital	Lewiston, Maine
St. Mary's General Hospital	Lewiston, Maine
Maine Medical Center	Portland, Maine
Baltimore City Hospitals	Baltimore
Bon Secours Hospital	Baltimore
Church Home and Hospital	Baltimore
Franklin Square Hospital	Baltimore
Lutheran Hospital	Baltimore
Maryland General Hospital	Baltimore
Mercy Hospital	Baltimore
Provident Hospital and Free Dispensary	Baltimore
St. Agnes Hospital	Baltimore
St. Joseph's Hospital	Baltimore
Sinai Hospital	Baltimore
South Baltimore General Hospital	Baltimore
Union Memorial Hospital	Baltimore
University Hospital	Baltimore
Suburban Hospital	Bethesda, Md.
Prince George's General Hospital	Cheverly, Md.
Washington County Hospital	Hagerstown, Md.
Beverly Hospital	Beverly, Mass.
Carney Hospital	Boston
New England Hospital	Boston
St. Elizabeth Hospital	Boston
Brockton Hospital	Brockton, Mass.
Cambridge City Hospital	Cambridge, Mass.
Mount Auburn Hospital	Cambridge, Mass.
Truesdale Hospital	Fall River, Mass.
Union Hospital	Fall River, Mass.
Holyoke Hospital	Holyoke, Mass.
Lawrence General Hospital	Lawrence, Mass.
Lowell General Hospital	Lowell, Mass.
St. John's Hospital	Lowell, Mass.
St. Joseph's Hospital	Lowell, Mass.
Lynn Hospital	Lynn, Mass.
St Luke's Hospital	New Bedford, Mass.
Newton-Wellesley Hospital	Newton Lower Falls, Mass.
St. Luke's Hospital	Pittsfield, Mass.
Quincy City Hospital	Quincy, Mass.
Salem Hospital	Salem, Mass.
Mercy Hospital	Springfield, Mass.
Springfield Hospital	Springfield, Mass.
Wesson Memorial Hospital	Springfield, Mass.
Waltham Hospital	Waltham, Mass.
Memorial Hospital	Worcester, Mass.
St Vincent Hospital	Worcester, Mass.
Worcester City [illegible]	Worcester, Mass.
St. Joseph's Mer [illegible]	Ann Arbor, Mich.
Leila Y. Post Montgomery Hospital	Battle Creek, Mich.
Mercy Hospital	Benton Harbor, Mich.
Oakwood Hospital	Dearborn, Mich.
Detroit Memorial Hospital	Detroit
Evangelical Deaconess Hospital	Detroit
Grace Hospital	Detroit
Harper Hospital	Detroit
Henry Ford [illegible]	Detroit
Mount Carme [illegible]	Detroit
Providence H [illegible]	Detroit
Receiving Hospital	Detroit
St. John Hospital	Detroit
St. Joseph Mercy Hospital	Detroit
Sinai Hospital	Detroit
Woman's Hospital	Detroit
Wayne County General Hospital and Infirmary	Eloise, Mich.
Hurley Hospital	Flint, Mich.
McLaren General Hospital	Flint, Mich.
St. Joseph Hospital	Flint, Mich.
Blodgett Memorial Hospital	Grand Rapids, Mich.
Butterworth Hospital	Grand Rapids, Mich.
St. Mary's Hospital	Grand Rapids, Mich.
Bon Secours Hospital	Grosse Point, Mich.
Highland Park General Hospital	Highland Park, Mich.
Borgess Hospital	Kalamazoo, Mich.
Bronson Methodist Hospital	Kalamazoo, Mich.
Edward W. Sparrow Hospital	Lansing, Mich.
St. Lawrence Hospital	Lansing, Mich.
Midland Hospital	Midland, Mich.
Pontiac General Hospital	Pontiac, Mich.
St. Joseph Mercy Hospital	Pontiac, Mich.
William Beaumont Hospital	Royal Oak, Mich.
Saginaw General Hospital	Saginaw, Mich.
St. Luke's Hospital	Saginaw, Mich.
St. Mary's Hospital	Saginaw, Mich.
James Decker Munson Hospital	Traverse City, Mich.
St. Luke's Hospital	Duluth, Minn.
St. Mary's Hospital	Duluth, Minn.
Asbury Methodist Hospital	Minneapolis
Minneapolis General Hospital	Minneapolis
Mount Sinai Hospital	Minneapolis
Northwestern Hospital	Minneapolis
St. Barnabas Hospital	[illegible]
St. Mary's Hospital	[illegible]olis
Swedish Hospital	[illegible]

NONFEDERAL—Continued

Memorial Hospital .... Danville, Va.
Lynchburg General Hospital.................... Lynchburg, Va.
Mary Immaculate Hospital.................... Newport News, Va.
Riverside Hospital .... Newport News, Va.
De Paul Hospital.................... Norfolk, Va.
Norfolk General Hospital.................... Norfolk, Va.
Johnston-Willis Hospital .... Richmond, Va.
Medical College of Virginia—Hospital Division.................... Richmond, Va.
Stuart Circle Hospital.................... Richmond, Va.
Lewis-Gale Hospital .... Roanoke, Va.
Roanoke Memorial Hospital.................... Roanoke, Va.
Winchester Memorial Hospital.................... Winchester, Va.
Doctors Hospital .... Seattle
King County Hospital Unit No. 1 (Harborview).................... Seattle
Providence Hospital .... Seattle
Seattle General Hospital.................... Seattle
Swedish Hospital .... Seattle
Virginia Mason Hospital.................... Seattle
Deaconess Hospital .... Spokane, Wash.
Sacred Heart Hospital.................... Spokane, Wash.
St. Luke's Hospital.................... Spokane, Wash.
Pierce County Hospital.................... Tacoma, Wash
St. Joseph Hospital.................... Tacoma, Wash.
Tacoma General Hospital.................... Tacoma, Wash
Charleston General Hospital.................... Charleston, W. Va.
Kanawha Valley Hospital.................... Charleston, W. Va.
Memorial Hospital .... Charleston, W. Va.
Cabell Huntington Hospital.................... Huntington, W. Va.
St. Mary's Hospital.................... Huntington, W. Va.
Camden Clark Memorial Hospital.................... Parkersburg, W. Va.
St. Joseph's Hospital.................... Parkersburg, W. Va
Ohio Valley General Hospital.................... Wheeling, W. Va.
Wheeling Hospital .... Wheeling, W. Va.
Luther Hospital .... Eau Claire, Wis.
St. Agnes Hospital.................... Fond du Lac, Wis.
Mercy Hospital .... Janesville, Wis.
La Crosse Lutheran Hospital.................... La Crosse, Wis.
St. Francis Hospital.................... La Crosse, Wis

ROTATING (Med. Major)

Number of Approved Programs, 9

.... Washington, D. C.
George Washington University Hospital.................... Ann Arbor, Mich
University Hospital.................... St. Louis
Missouri Baptist Hospital.................... Brooklyn
Prospect Heights Hospital.................... Brooklyn
St. Peter's Hospital.................... Columbus, Ohio
University Hospitals.................... Oklahoma City, Okla.
University of Oklahoma Hospitals.................... Dallas, Texas
St. Paul's Hospital.................... Norfolk, Va
Norfolk General Hospital....................

ROTATING (Surg. Major)

Number of Approved Programs, 11

.... Washington, D. C.
George Washington University Hospital.................... Shreveport, La.
T. E. Schumpert Memorial Hospital.................... Ann Arbor, Mich.
University Hospital.................... St. Louis
Missouri Baptist Hospital.................... Brooklyn
Prospect Heights Hospital.................... Brooklyn
St. Peter's Hospital....................
Bellevue Hospital Center Div. 1—Surgical—.................... New York City
Columbia University.................... Columbus, Ohio
University Hospitals.................... Oklahoma City, Okla.
University of Oklahoma Hospitals.................... Dallas, Tex.
St. Paul's Hospital.................... Norfolk, Va.
Norfolk General Hospital....................

ROTATING (Ped. Major)

Number of Approved Programs, 3

.... Ann Arbor, Mich.
University Hospital.................... Brooklyn
St. Peter's Hospital.................... Norfolk, Va.
Norfolk General Hospital....................

ROTATING (Ob.-Gyn. Major)

Number of Approved Programs, 3

.... Ann Arbor, Mich.
University Hospital.................... Brooklyn
St. Peter's Hospital. .... Norfolk, Va.
Norfolk General Hospital....................

OTHER ROTATING

Number of Approved Programs, 11

.... Denver
University of Colorado Medical Center
Colorado General Hospital.................... Denver
Community Rotating
Denver General Hospital.... ....

OTHER ROTATING—Continued

Community Rotating
George Washington University Hospital.................... Washingt
Rotating (Path.-Major)
University Hospital.................... Ann Arbor
Rotating (Neurol.-Major)
Rotating (Derm.-Major)
Rotating (Anes.-Major)
Rotating (Otol.-Major)
Rotating (Ophth.-Major)
Rotating (Phys.-Med. Rehab.-Major)
Rotating (Gen. Prac.-Major)
Rotating (Path.-Major)

MIXED

Number of Approved Programs, 29

U. S. Public Health Service Hospital, Boston; Med.-Surg.
University Hospital, Little Rock, Ark.; Med.-Ped.
Georgetown University Hospital, Washington, D. C.; Med.-Surg.
University of Kansas Medical Center, Kansas City, Kan.; Med.-Surg.;
Path.-Med.; Path.-Surg.
Baltimore City Hospitals, Baltimore;Med.-Ped.; Ped.-Med.
Hospital for Women, Baltimore; Med.-Ob.-Gyn.
University Hospital, Baltimore, Md.: Surg.-Ob.-Gyn.
Holyoke Hospital, Holyoke, Mass.; Med.-Surg.
Lutheran Hospital, St. Louis; Med.-Surg.-Ob.-Gyn.
Bellevue Hospital Center, New York City
Division I—Medical—Columbia University; Med.-Chest Surg. or
Bellevue Hospital Center, New York City
Division II—Medical—Cornell University; Med.-Path.
Bellevue Hospital Center, New York City
Division III—Medical—New York University College of Med'c
Med.-Surg.
Bellevue Hospital Center, New York City
Division III—Surgical—New York University College of Med.
Surg.-Med.
Knickerbocker Hospital, New York City; Med.-Surg.
Montefiore Hospital, New York City; Med.-Surg.-Pul.-Neuro.-Neoplast.
Roosevelt Hospital, New York City; Med.-Ped.-Surg.; Surg.-Gyn.-Med
St. Luke's Hospital, New York City; Med.-Surg.; Surg.-Med
Strong Memorial—Rochester Municipal Hospitals, Rochester, N. Y.;
Surg.-Ob.-Gyn.
General Hospital, Syracuse, N. Y.; Med.-Surg.-Ob.-Gyn.
State University of New York Upstate Medical Center Hospitals,
Syracuse, N. Y.; Med.-Surg.
Grasslands Hospital, Valhalla, N. Y.; Med.-Ped.-Surg.; Surg.-Ob.-Med.
North Carolina Memorial Hospital, Chapel Hill, N. C.; Med.-Ped.
Duke Hospital, Durham, N. C.; Ob.-Ped.
Watts Hospital, Durham, N. C.; Med.-Surg.-Ob.-Gyn.
North Carolina Baptist Hospital, Winston-Salem, N. C.; Ped.-Ob.-Gyn.-M
Bethesda Hospital, Cincinnati; Med.-Ob.-Surg.
Baroness Erlanger Hospital, Chattanooga, Tenn.; Med.-Ob.-Surg.
St. Thomas Hospital, Nashville, Tenn.; Med.-Surg.; Ob.-Gyn.-Surg.;
Ob.-Gyn.-Med.
Jefferson Hospital, Roanoke, Va.; Surg.-Med.-Ob.

STRAIGHT

Total Number of Approved Programs, 210

INTERNAL MEDICINE

Number of Approved Programs, 79

.... Long Beach,
Veterans Admin. Hospital.................... Los A
Veterans Admin. Hospital.................... Atlanta
Veterans Admin. Hospital.................... Oklahoma
Veterans Admin. Hospital.................... Dallas,
Veterans Admin. Hospital.................... Salt Lak
Veterans Admin. Hospital.................... Birmingham
University Hospital and Hillman Clinic.................... Little Rock
University Hospital.................... Los A
Los Angeles County Hospital.................... Los A
University of California Hospital.................... San Fr
Stanford University Hospitals.................... San Fr
University of California Hospitals.................... Bridgeport
Bridgeport Hospital.................... New Haven
Grace-New Haven Community Hospital.................... Washingto
Georgetown University Hospital.................... Mia
Jackson Memorial Hospital.................... Atla
Grady Memorial Hospital.................... Emory Univer
Emory University Hospital....................
Michael Reese Hospital.................... Kansas Ci
University of Kansas Medical Center.................... Louis
Louisville General Hospital.................... New
Ochsner .... B
Baltimo .... B
Church .... B
Johns Hopkins Hospital.................... B
Sinai Hospital....................
University Hospital....................
Beth Israel Hospital....................
Boston City Hospital....................
Massachusetts General Hospital....................
Massachusetts Memorial Hospitals....................
New England Center Hospital....................

INTERNAL MEDICINE—Continued

Bent Brigham Hospital	Boston
thwestern Hospital	Minneapolis
versity of Minnesota Hospitals	Minneapolis
nes [illegible]	St. Louis
Mar [illegible]	St. Louis
ey [illegible]	City, N. J.
any Hospital	Albany, N. Y.
nberland Hospital	Brooklyn
ish Hospital	Brooklyn
gs County Hospital	Brooklyn
g Island College Hospital	Brooklyn
monides Hospital	Brooklyn
hodist Hospital	Brooklyn
John's Episcopal Hospital	Brooklyn
falo General Hospital	Buffalo
y Imogene Bassett Hospital	Cooperstown, N. Y.
levue Hospital Center Division II—Medical Cornell University	New York City
levue Hospital Center Division III—Medical New York University College of Medicine	New York City
levue Hospital Center Division IV—Medical New York University Postgraduate Medical School	New York City
nx Municipal Hospital Center	New York City
ckerbocker Hospital	New York City
anon Hospital	New York City
York Hospital	New York City
sbyterian Hospital	New York City
Clare's Hospital	New York City
Vincent's Hospital	New York City
nesee Hospital	Rochester, N. Y.
chester General Hospital	Rochester, N. Y.
ong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
ate University of New York Upstate Medical Center	Syracuse, N. Y.
rth Carolina Memorial Hospital	Chapel Hill, N. C.
ke Hospital	Durham, N. C.
atts Hospital	Durham, N. C.
rth Carolina Baptist Hospital	Winston-Salem, N. C.
iversity Hospitals	Cleveland
Thomas Hospital	Nashville, Tenn.
nderbilt University Hospital	Nashville, Tenn.
ylor University Hospital	Dallas, Texas
rkland Memorial Hospital	Dallas, Texas
Paul's Hospital	Dallas, Texas
fferson Davis Hospital	Houston, Texas
thodist Hospital	Houston, Texas
lt Lake County General Hospital	Salt Lake City
iversity of Virginia Hospital	Charlottesville, Va.
esapeake and Ohio Hospital	Clifton Forge, Va.
dical College of Virginia—Hospital Division	Richmond, Va.
ng County Hospital, Unit No. 1 (Harborview)	Seattle

PATHOLOGY

Number of Approved Programs, 25

niversity of California Hospital	Los Angeles
niversity of California Hospitals	San Francisco
race-New Haven Community Hospital	New Haven, Conn.
mory University Hospital	Emory University, Ga.
niversity of Kansas Medical Center	Kansas City, Kan.
altimore City Hospitals	Baltimore
ohns Hopkins Hospital	Baltimore
oston City Hospital	Boston
hildren's Medical Center	Boston
assachusetts General Hospital	Boston
assachusetts Memorial Hospitals	Boston
arnes Hospital	St. Louis
ersey City Hospital	Jersey City, N. J.
ings County Hospital	Brooklyn
ellevue Hospital Center, Division III—Pathology New York University College of Medicine	New York City
ew York Hospital	New York City
resbyterian Hospital	New York City
enesee Hospital	Rochester, N. Y.
trong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
orth Carolina Memorial Hospital	Chapel Hill, N. C.
uke Hospital	Durham, N. C.
orth Carolina Baptist Hospital	Winston-Salem, N. C.
niversity Hospitals	Cleveland
ood Samaritan Hospital	Portland, Ore.
anderbilt University Hospital	Nashville, Tenn.

PEDIATRICS

Number of Approved Programs, 45

University Hospital and Hillman Clinic	Birmingham, Ala.
University Hospital	Little Rock, Ark.
Childrens Hospital	Los Angeles
University of California Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospitals	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta, Ga.
Michael Reese Hospital	Chicago
University of Chicago Clinics	Chicago
University of Kansas Medical Center	Kansas City, Kan.
Louisville General Hospital	Louisville, Ky.
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore

PEDIATRICS—Continued

University Hospital	Baltimore
Boston City Hospital	Boston
Children's Medical Center	Boston
Massachusetts General Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
St. Louis Children's Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Jersey City Hospital	Jersey City, N. J.
Cumberland Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Children's Hospital	Buffalo
Bellevue Hospital Center—Division III—Pediatrics New York University College of Medicine	New York City
Bronx Municipal Hospital Center	New York City
New Yo [illegible]	New York City
St. Luke [illegible]	New York City
Strong [illegible]	Rochester, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
[illegible]	ham, N. C.
[illegible]	lem, N. C.
[illegible]	Cleveland
[illegible]	ville, Tenn.
[illegible]	Dallas, Texas
Jefferson Davis Hospital	Houston, Texas
Salt Lake County General Hospital	Salt Lake City
Milwaukee Children's Hospital	Milwaukee

SURGERY

Number of Approved Programs, 61

University of California Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospitals	San Francisco
Bridgeport Hospital	Bridgeport, Conn.
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta, Ga.
Emory University Hospital	Emory University, Ga.
Michael Reese Hospital	Chicago
Provident Hospital	Chicago
Indiana University Medical Center	Indianapolis
University of Kansas Medical Center	Kansas City, Kan.
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
University Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
St. Joseph Hospital	Kansas City, Mo.
Barnes Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Jersey City Hospital	Jersey City, N. J.
Albany Hospital	Albany, N. Y.
Cumberland Hospital	Brooklyn
Kings County Hospital	Brooklyn
Long Island College Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Bellevue Hospital Center—Division I—Surgical Columbia University	New York City
Bellevue Hospital Center—Division II—Surgical Cornell University	New York City
Bellevue Hospital Center—Division III—Surgical New York University College of Medicine	New York City
Bellevue Hospital Center—Division IV—Surgical New York University Postgraduate Medical School	New York City
Bronx Municipal Hospital Center	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St. Clare's Hospital	New York City
St. Vincent's Hospital	New York City
Genesee Hospital	Rochester, N. Y.
Highland Hospital	Rochester, N. Y.
Rochester General Hospital	Rochester, N. Y.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Texas
Jefferson Davis Hospital	Houston, Texas
Methodist Hospital	Houston, Texas
University of Virginia Hospital	Charlottesville, Va.
Medical College of Virginia—Hospital Division	Richmond, Va.

APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association

535 North Dearborn Street, Chicago 10

Revised to September 1, 1957

Hospitals, 1,259; Assistant Residencies and Fellowships, 31,252

The following services are approved by the Council on Medical Education and Hospitals as meeting the requirements of the Essentials of Approved Residencies and Fellowships. In those specialties in which certifying boards have been established approval is extended in concurrence with the Board concerned as indicated. The number of years of training for which approval has been granted is indicated in the column, "Length of Approved Program (years)." Residencies in which this designation does not appear have been approved without specifying the number of years for which they are accredited. The beginning stipends for Federal hospitals have not been listed; they are established in accordance with government pay tables.

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28. Urology ....

1. ALLERGY

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Allergy of the American Board of Internal Medicine.

Hospitals, 20; Assistant Residencies and Residencies, 35

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Monthly)
UNITED STATES ARMY							
Army Medical Center [1-3]	Washington, D. C.	H. Ratcliffe	486	9,260	2	2	...
UNITED STATES NAVY							
U. S. Naval Hospital [1]	San Diego, Calif.	A. L. Lawler	7	6,602	1	2	...
NONFEDERAL AND VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-4]	Long Beach, Calif.	N. B. Kurnick	382	1,042	..	1	...
Kaiser Foundation Hospital [1-3]	San Francisco	B. F. Feingold	...	68,689	..	2	[illegible]
Northwestern University Medical Center [1-3]	Chicago	S. Feinberg	...	3,886	2	2	[illegible]
University of Illinois Research and Education Hospitals [1-3]	Chicago	M. Samter	40	7,545	1	1	[illegible]
Massachusetts General Hospital [1-3]	Boston	W. S. Burrage	...	8,601	2	2	[illegible]
University Hospital [1-3]	Ann Arbor, Mich.	J. M. Sheldon	16	10,851	3	3	[illegible]
Mayo Foundation [1-3]	Rochester, Minn.	L. E. Frickman	Incl. in Int. Med.		..	..	[illegible]
Jewish Hospital [1-3]	Brooklyn, N. Y.	M. Grolnick	23	7,674	1	1	[illegible]
Buffalo General Hospital [1-3]	Buffalo	C. E. Arbesman	Incl. in Int. Med.		1	2	[illegible]
Roosevelt Hospital [1-3]	New York City	R. A. Cooke	201	41,244	4	4	[illegible]
Duke University Hospital [1-3]	Durham, N. C.	O. Hansen-Pruss	170	650	..	2	[illegible]
Ohio State University Hospitals University Hospital [1-3]	Columbus, Ohio	J. H. Mitchell	...	2,302	..	1	[illegible]
Temple University Hospital [1-3]	Philadelphia	L. Tuft	...	4,927	1	1	[illegible]
Montefiore Hospital [1-3]	Pittsburgh	L. H. Criep	103	12,425	2	2	[illegible]
Veterans Admin. Hospital [1-3]	Pittsburgh	L. H. Criep	298	15,480	2	2	[illegible]
University of Virginia Hospital [1-3]	Charlottesville, Va.	O. Swineford, Jr.	264	5,061	3	3	[illegible]
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	M. E. B. Owens	...	5,979	..	1	[illegible]
University Hospitals [1-3]	Madison, Wis.	S. B. Crepen	...	4,033	1	1	...

2. ANESTHESIOLOGY

Residency programs in the following hospitals have been approved for TWO years of training by the Council and the American Board of Anesthesiology, through the *Residency Review* Committee for Anesthesiology.

Hospitals, 213; Assistant Residencies and Residencies, 1,272

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Monthly)
UNITED STATES AIR FORCE							
U. S. Air Force Hospital	San Antonio, Texas	A. B. Tarrow	6,474	3,262	3	6	...
UNITED STATES ARMY							
Letterman Army Hospital [1-3]	San Francisco	J. F. Pfeffer	6,222	2,493	..	2	...
Fitzsimons Army Hospital [1]	Denver	C. H. Mitchell	5,915	695	..	2	...
Army Medical Center [1-3]	Washington, D.C.	H. C. Slocum	11,612	5,518	4	10	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. A. Jenicek	5,632	2,192	4	10	...
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Oakland, Calif.	E. E. Parker	11,168	4,000	2	4	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. M. Hanner	14,534	1,691	2	4	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	J. G. Kurfees	10,910	3,233	2	4	...
U. S. Naval Hospital [1]	Chelsea, Mass.	D. R. Buechel	5,223	495	2	4	...

Numerical and other references will be found on pages 556 through 559.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Induction Anesthetics	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
U. S. Naval Hospital [1]	St. Albans, N. Y.	D. M. Pino	6,609	718	2	4	...
U. S. Naval Hospital [1]	Philadelphia	T. C. Deas	5,566	1,351	2	4	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y.	K. F. Urbach	3,262	1,401	2	4	...
NONFEDERAL AND VETERANS ADMINISTRATION							
University of Alabama Medical Center							
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	A. McNeal	10,052	8,900	2	4	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	R. W. Grady	3,711	1,798	1	2	225
St. Vincent Infirmary [1-3]	Little Rock, Ark.	J. P. Hickey	7,314	2,305	4	8	300
University Hospital [1]	Little Rock, Ark.	C. W. Shafer	2,401	1,502	2	5	150
Los Angeles County Hospital [1]	Los Angeles	J. Denson	14,629	8,496	14	27	246
University of California Hospital [1-3]	Los Angeles	J. B. Dillon	2,019	1,749	4	7	198
Veterans Admin. Hospital [1-3]	Los Angeles	N. H. Rupp	5,391	708	4	10	...
White Memorial Hospital [1-3]	Los Angeles	F. E. Leffingwell	4,892	2,588	5	10	150
Highland-Alameda County Hospital [1]	Oakland, Calif.	C. H. Gallup	3,270	1,914	2	4	200
Samuel Merritt Hospital [1]	Oakland, Calif.	B. M. Anderson	6,159	3,674	2	5	195
Kaiser Foundation Hospital [1-3]	San Francisco	E. P. Shannon	5,236	3,927	3	6	265
Mount Zion Hospital [1-3]	San Francisco	A. J. Harris	5,337	3,371	1	2	150
St. Francis Memorial Hospital [1-3]	San Francisco	J. E. Cann	5,627	5,214	3	3	300
St. Joseph's Hospital [1-3]	San Francisco	R. A. Simpson	4,072	1,712	1	2	200
San Francisco Hospital							
Stanford University Service [1-3]	San Francisco	R. Ponath	5,742	2,324	3	6	195
Stanford University Hospitals [1-3]	San Francisco	P. J. Bailey	6,456	669	2	3	80
University of California Hospital [1-3]	San Francisco	....	6,953	4,778	5	9	210
Santa Clara County Hospital [1-3]	San Jose, Calif.	J. Atkinson-J. W. Pender	2,292	1,673	1	2	260
Harbor General Hospital [1]	Torrance, Calif.	J. D. Boone	2,909	1,693	2	4	246
University of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	R. W. Virtue	3,618	1,693	5	9	180
Denver General Hospital [1-3]	Denver	R. Virtue	2,652	1,450	..	..	157
Veterans Admin. Hospital [1-3-88]	Denver	F. Brown	1,833	1,021	1	3	...
Bridgeport Hospital [1-3]	Bridgeport, Conn.	D. Massey	9,175	3,755	1	2	240
Hartford Hospital [1-3-92]	Hartford, Conn.	R. M. Tovell	44,015	17,233	10	20	100
St. Francis Hospital [1-3]	Hartford, Conn.	S. J. Martin	17,138	7,594	3	6	125
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	N. M. Greene	12,410	920	3	7	50
Hospital of St. Raphael [3]	New Haven, Conn.	M. Garofalo	8,980	7,087	2	4	150
District of Columbia General Hospital [1-3]	Washington, D.C.	S. N Albert	4,879	3,873	3	5	233
Doctors Hospital [1-3]	Washington, D.C.	D. Stubbs	7,739	6,551	2	4	250
Georgetown University Hospital [1-3]	Washington D.C.	T. F. McDermott	9,172	5,247	6	11	175
George Washington University Hospital [1-3]	Washington, D.C.	C. S. Coakley	11,384	10,023	5	12	150
Washington Hospital Center							
Garfield Memorial Hospital [1-3]	Washington, D.C.	W. E. Bageant	4,743	102	..	..	215
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. G. Converse	14,123	5,708	2	4	75
University Hospital [1]	Augusta, Ga.	A. J. Waters	5,386	3,736	4	8	200
Emory University Hospital [1-3]	Emory University, Ga.	W. H. Galvin	3,820	6,983	1	3	245
Michael Reese Hospital	Chicago	J. Bolgla	8,893	3,956	2	4	125
Mount Sinai Hospital [1-3]	Chicago	R. Weyl	5,813	5,296	3	6	125
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital [1-3]	Chicago	M. Karp	10,965	9,737	2	4	100
St. Luke's Hospital [1-3]	Chicago	P. W. Searles	5,629	4,581	5	9	125
University of Chicago Clinics [1-3]	Chicago	E. T. Morch	9,704	5,709	4	11	200
University of Illinois Research and Education Hospitals [1-3]	Chicago	M. S. Sadove	6,992	3,751	5	12	125
Evanston Hospital [1-3]	Evanston, Ill.	C. A. Baldwin, Jr.	4,787	1,318	1	2	225
Veterans Admin. Hospital [1]	Hines, Ill.	M. Sadove	12,794	1,992	3	6	...
St. Joseph's Hospital [3]	Joliet, Ill.	L. D. Ruttle	6,724	4,041	2	4	350
Indianapolis General Hospital [1]	Indianapolis	R. E. Vore	5,396	1,749	2	4	205
Indiana University Medical Center [1]	Indianapolis	V. K. Stoelting	10,976	7,994	7	14	165
State University of Iowa Hospitals [1-3]	Iowa City	S. C. Cullen	12,055	7,176	7	14	140
Veterans Admin. Hospital	Des Moines, Ia.	J. L. Bailey	3,148	511	..	..	...
Veterans Admin. Hospital [1-3]	Iowa City	L. DeBacker-S. C. Cullen	1,596	307	..	..	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	P. H. Lorhan	5,454	4,046	3	9	125
Veterans Admin. Hospital [1]	Kansas City, Mo.	H. Hash	2,304	1,080	..	..	...
St. Francis Hospital [1-3]	Wichita, Kan.	R. T. Parmley	14,481	13,085	2	5	275
Louisville General Hospital [1-3-136]	Louisville, Ky.	R. P. Bergner	9,398	6,918	3	7	83
Charity Hospital of Louisiana [1]	New Orleans	J. Adriani	24,000	17,000	6	12	125
Ochsner Foundation Hospital [1]	New Orleans	G. B. Grant	5,498	2,314	3	6	225
Eastern Maine General Hospital [1-3]	Bangor, Maine	C. S. Dwyer	5,951	3,900	1	2	100
Central Maine General Hospital [1]	Lewiston, Maine	G. Clapperton	4,334	3,904	1	1	225
Maine Medical Center [1]	Portland, Maine	J. R. Lincoln	5,481	4,041	2	4	125
Baltimore City Hospital [1-3]	Baltimore	P. Safar	7,322	1,318	3	5	50
University Hospital [1-3]	Baltimore	M. Helrich	7,258	4,874	6	12	75
Boston City Hospital [1-3]	Boston	P. S. Marcus	18,364	10,104	..	16	162
Lahey Clinic [1-3-167-168]	Boston	U. H. Eversole	6,642	5,307	6	12	200
Massachusetts General Hospital [1-3]	Boston	H. K. Beecher	12,580	5,403	6	14	67
Massachusetts Memorial Hospitals [1-3]	Boston	E. Sneddon	3,739	2,706	2	4	100
New England Center Hospital [1-3]	Boston	B. E. Etsten	2,639	1,451	3	7	100
New England Deaconess Hospital [1-3]	Boston	L. V. Hand-F. J. Audin	5,014	2,761	3	7	200
New England Hospital [1-3]	Boston	E. E. Bartlett	3,233	2,815	2	2	75
Peter Bent Brigham Hospital [1-3]	Boston	L. D. Vandam	3,521	2,108	..	2	100
St. Elizabeth's Hospital [1-3]	Boston	L. Zentgraf	12,926	3,822	1	2	125
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	D. L. Mahler	4,861	1,659	1	2	...
Cambridge City Hospital [1-3]	Cambridge, Mass	F. C. Callahan	3,749	2,420	1	2	160
Mount Auburn Hospital [1-3]	Cambridge, Mass	J. H. Buskirk	5,146	3,571	1	4	150
Springfield Hospital [1-3]	Springfield, Mass.	H. L. Strachan	7,136	2,675	1	2	125
St. Vincent Hospital [1-3]	Worcester, Mass.	W. J. Martin, Jr.	7,770	3,571	2	4	...
Worcester City Hospital [1-3]	Worcester, Mass.	A. Haddad	5,809	1,815	2	2	215
University Hospital [1-3-159]	Ann Arbor, Mich.	R. B. Sweet	9,646	3,576	4	8	154
Harper Hospital [1-3]	Detroit	A. B. Stearns	15,287	5,028	1	2	225
Henry Ford Hospital [1-3]	Detroit	P. R. Dumke	16,785	6,991	4	8	225
Providence Hospital [1]	Detroit	N. M Bittrich	6,065	2,789	2	4	275
Receiving Hospital [1-3]	Detroit	F Greifenstein	9,250	2,520	7	16	283
Sinai Hospital [1-3]	Detroit	E. M Brown	6,935	3,569	1	2	275
Butterworth Hospital [1-3]	Grand Rapids, Mich.	M. L. Byrd	11,060	10,776	1	2	300
University of Minnesota Hospitals [1-3-207]	Minneapolis	F. H. Van Bergen	18,676	12,101	12	28	155
Mayo Foundation [1-3]	Rochester, Minn.	A. Faulconer, Jr.	30,000	20,000	5	18	175
University Hospital [1]	Jackson, Miss.	....	2,536	2,006	2	4	250
Barnes Hospital [1-3]	St. Louis	R. B. Dodd	18,432	16,589	4	8	150
St. John's Hospital [1-3]	St. Louis	S. Brown	8,234	6,171	1	2	200
Veterans Admin. Hospital [1-3]	St. Louis	H. W. Crouch	3,706	1,191	2	4	...
University of Nebraska Hospital [1-3]	Omaha	J. L. Barmore	2,354	1,028	2	2	175
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. H. Barrett	5,893	2,699	2	4	218
Hackensack Hospital [1-3]	Hackensack, N. J.	L. W. Netz	8,824	7,511	1	2	150
Jersey City Medical Center [1-3]	Jersey City, N. J.	W. J. Gleeson	5,078	2,257	3	6	108
St. Joseph Hospital [1-3]	Paterson, N. J.	E. T. Lawless	6,342	5,151	2	4	150

Numerical and other references will be found on pages 556 through 559.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered	Total Residencies Offered	Beginning Stipend (Month)
Albany Hospital[1-8]	Albany, N. Y.	C M. Landmesser	7,987	5,473	4	9	[illegible]
Beth-El Hospital[1-3]	Brooklyn, N. Y.	A. C. Goldfeder	6,918	2,190	2	3	125
Jewish Hospital[1-3]	Brooklyn, N. Y.	I. Pallin	7,698	4,447	5	8	[illegible]
Kings County Hospital Center	Brooklyn, N. Y.	M. Harmel	9,038	7,530	6	12	[illegible]
Maimonides Hospital[1-3]	Brooklyn, N. Y.	L. Holzmann	9,291	5,508	2	3	[illegible]
St. Catherine's Hospital[1-3]	Brooklyn, N. Y.	F. P. Ansbro	3,780	2,299	1	3	[illegible]
Veterans Admin. Hospital[1-8]	Brooklyn, N. Y.	H. I. Lipson	2,641	1,090	2	2	125
Buffalo General Hospital[1-8-239]	Buffalo	R. N. Terry	14,476	531	2	4	175
Edward J. Meyer Memorial Hospital[1-8]	Buffalo	B. D. King	5,159	3,051	2	5	[illegible]
Millard Fillmore Hospital[1-3]	Buffalo	E. D. Babbage	11,272	1,410	1	1	[illegible]
Veterans Admin. Hospital[1-8]	Buffalo	S. I. Guest	8,146	392	2	4	...
Flushing Hospital and Dispensary[1-8]	Flushing, N. Y.	E. Apogi	7,921	6,982	1	2	175
Long Island Jewish Hospital[1-3]	New Hyde Park, N. Y.	S. N. Surks	5,551	4,052	2	4	75
Bellevue Hospital Center							
Div. IV-New York University Post-Graduate Medical School[299]	New York City	E. A. Rovenstine	12,750	6,292	10	18	[illegible]
Beth Israel Hospital[1-3]	New York City	S. G. Hershey	3,596	2,575	4	5	[illegible]
Bronx Municipal Hospital Center[1-8]	New York City	L. R. Orkin	6,588	5,706	8	16	175
Hospital for Joint Diseases[1-3]	New York City	A. M. Betcher	3,337	2,635	2	3	80
Lenox Hill Hospital[1-3]	New York City	G. Rich	6,696	2,457	2	3	[illegible]
Memorial Center for Cancer and Allied Diseases	New York City	W. S. Howland	7,383	3,273	2	9	200
James Ewing Hospital[1-8]	......	......	.....	.....	..	..	...
Memorial Hospital[1-2]	......	......	.....	.....	..	..	...
Montefiore Hospital[1-3]	New York City	E. Kepes	3,298	2,165	5	6	[illegible]
Mount Sinai Hospital[1-3]	New York City	M. H. Adelman	11,219	6,848	4	7	75
New York Medical College—Metropolitan Medical Center		......	.....	.....	..	..	...
Flower and Fifth Avenue Hospitals	New York City	F. E. Fierro	4,840	3,397	4	8	104
Metropolitan Hospital[1-3]	New York City	......	7,227	2,306	1	3	...
New York Hospital[1-8]	New York City	J. F. Artusio	16,325	11,395	5	10	104
New York Polyclinic Medical School and Hospital[1-8]	New York City	J. Milowsky	5,952	3,728	4	8	125
Presbyterian Hospital[1]	New York City	E. M. Papper	23,558	18,148	11	26	250
St. Clare's Hospital[1-3]	New York City	G. A. Keating	3,329	1,418	1	2	[illegible]
St. Luke's Hospital	New York City	G. E. Burford	6,031	2,647	3	6	100
St. Vincent's Hospital[1-3]	New York City	V. J. Collins	5,937	3,752	4	8	125
Veterans Admin. Hospital[1-3]	New York City (Bronx)	B. J. Ciliberti	5,057	1,272	4	9	...
Genesee Hospital[1-3]	Rochester, N. Y.	E. Kistler	6,622	4,664	1	2	210
St. Mary's Hospital[1-3]	Rochester, N. Y.	M. Weingarten	10,180	2,890	2	4	200
Strong Memorial-Rochester Municipal Hospitals[1-3]	Rochester, N. Y.	V. Thomas	8,475	7,332	4	5	117
Ellis Hospital[1-3]	Schenectady, N. Y.	H. A. Snell	7,328	5,369	1	2	150
St. Joseph's Hospital[1-8]	Syracuse, N. Y.	C. J. Geiger	10,832	4,210	1	1	191
State University of New York Upstate Medical Center Hospitals[1-2]	Syracuse, N. Y.	E. J. Delmonico	7,034	5,440	2	6	233
Grasslands Hospital[1-8]	Valhalla, N. Y.	H. F. Bishop	1,978	791	1	3	175
North Carolina Memorial Hospital[1-8]	Chapel Hill, N. C.	D. A. Davis	2,991	2,385	3	7	[illegible]
Duke University Hospital[1-3]	Durham, N. C.	C. R. Stephen	11,661	8,076	6	12	160
North Carolina Baptist Hospital[1-8]	Winston-Salem, N. C.	R. M. Wall	6,604	3,611	1	1	125
Mercy Hospital[1-3]	Canton, Ohio	L. L. Frick	6,473	2,780	4	8	200
Christ Hospital[1]	Cincinnati	E. Hartenian	10,710	2,007	1	2	200
City Hospital[1-3]	Cleveland	H. E. Kretchmer	8,661	3,720	2	4	[illegible]
Cleveland Clinic Hospital[1-8]	Cleveland	D. E. Hale	11,437	7,936	4	8	175
Fairview Park Hospital[1-8]	Cleveland	J. E. Walkowiak	6,696	4,816	2	4	200
Huron Road Hospital[1-8]	Cleveland	J. K. Potter	9,184	1,727	5	10	150
Mount Sinai Hospital[1-8]	Cleveland	S. Katz	11,093	5,993	2	4	215
St. Alexis Hospital[1-3]	Cleveland	M. Oppenheim	6,208	3,694	1	1	[illegible]
St. Luke's Hospital[1-3]	Cleveland	B. B. Sankey	13,466	6,296	2	4	200
University Hospitals[1-3]	Cleveland	R. A. Hingson	16,359	8,180	5	10	125
Ohio State University Hospitals							
University Hospital[1-3-312-316]	Columbus, Ohio	J. J. Jacoby	13,798	8,178	10	21	177
Marymount Hospital[1-8]	Garfield Heights, Ohio	N. G. De Piero	5,114	3,235	2	4	200
Youngstown Hospital[1-3]	Youngstown, Ohio	D. W. Metcalf	16,401	12,834	4	8	175
University of Oklahoma Hospitals[1-3]	Oklahoma City	J. M. White	6,777	5,692	4	8	...
University of Oregon Medical School Hospitals and Clinics[1]	Portland, Ore.	F. Haugen	5,404	2,828	4	7	100
Geo. F. Geisinger Memorial Hospital[1-8]	Danville, Pa.	J. M. Schwab	5,090	1,841	2	4	175
Conemaugh Valley Memorial Hospital[1-8]	Johnstown, Pa.	P. C. Lund	7,845	2,704	2	4	[illegible]
Albert Einstein Medical Center[1-5]	Philadelphia	M. L. Bernstine-B. Goldstein	14,281	11,934	5	14	200
Graduate Hospital of the University of Pennsylvania[1-8]	Philadelphia	H. H. Stone	6,740	6,000	5	6	100
Hahnemann Medical College and Hospital[1-8]	Philadelphia	A. J. Catenacci	7,721	2,207	4	8	75
Hospital of the University of Pennsylvania[1-8]	Philadelphia	R. Dripps	15,150	6,775	7	21	150
Hospital of the Woman's Medical College of Pennsylvania[1-8]	Philadelphia	H. H. Stone	3,797	3,262	1	2	...
Jefferson Medical College Hospital[1-8]	Philadelphia	L. J. Hampton	12,768	8,246	1	3	125
Pennsylv [illegible][1-8]	Philadelphia	M. V. Troncelliti	9,722	5,733	2	2	[illegible]
Philadel [illegible][3]	Philadelphia	E. Conner	6,120	3,248	3	6	121
Presbyt [illegible]	Philadelphia	S. Shotz	5,019	4,289	2	4	150
Temple [illegible]-8	Philadelphia	L. W. Krumperman	12,811	6,229	8	9	...
Allegheny General Hospital[1]	Pittsburgh	R. L. Patterson	13,495	11,716	8	6	[illegible]
Mercy Hospital[1-3]	Pittsburgh	F. F. Foldes	12,783	6,863	4	10	[illegible]
Montefiore Hospital[1-8]	Pittsburgh	L. G. David	6,479	4,122	1	2	[illegible]
St. Francis General Hospital and Rehabilitation Institute[1-8]	Pittsburgh	G. J. Thomas	9,447	2,888	2	4	200
Reading Hospital[1-8]	Reading, Pa.	M. Kerry	6,655	3,430	2	4	[illegible]
Robert Packer Hospital[1-8]	Sayre, Pa.	W. Brehm	7,010	4,085	2	4	200
Miriam Hospital[1-8]	Providence, R. I.	N S. Rakatansky	3,693	1,246	1	1	[illegible]
Rhode Island Hospital[1-3-341]	Providence, R. I.	M. Saklad	8,386	4,796	2	4	[illegible]
Medical College of South Carolina Teaching Hospitals[1]	Charleston, S. C.	J. M. Brown-J. C. Doerr	6,939	2,719	3	6	[illegible]
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	G. E. Cox	6,476	3,719	4	6	[illegible]
Vanderbilt University Hospital[1-3]	Nashville, Tenn	B. H. Robbins	5,951	3,703	2	4	[illegible]
Baylor University Hospital[1-3]	Dallas, Texas	R. Courtin	21,461	19,290	1	2	[illegible]
Parkland Memorial Hospital[1-3]	Dallas, Texas	M. T. Jenkins	4,128	2,482	7	14	[illegible]
Harris Hospital[1-3]	Fort Worth, Texas	A. N. Heinrichs	11,520	10,551	2	2	[illegible]
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	C. Allen	7,445	6,253	5	12	[illegible]
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital[1-3]	Houston, Texas	A. S. Keats	7,667	3,479	4	6	75
Methodist Hospital[1-3]	Houston, Texas	P. H. Chalmers	7,928	6,033	4	6	[illegible]
Veterans Admin. Hospital[1-8]	Houston, Texas	W. H. Mannheimer	4,631	1,104	4	6	...
Hermann Hospital[1-3]	Houston, Texas	L. F. Schuhmacher	17,243	5,027	3	6	[illegible]
St. Joseph's Hospital[8]	Houston, Texas	E. A. Hoeflich	13,494	10,563	1	1	[illegible]
University of Texas M. D. Anderson Hospital and Tumor Institute[1-3-358]	Houston, Texas	W. S. Derrick	3,657	2,331	4	6	[illegible]
Scott and White Memorial Hospitals[1-8]	Temple, Texas	C. H. Gillespie	5,957	4,192	2	4	[illegible]

Numerical and other references will be found on pages 556 through 559.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered [x]	Total Residencies Offered [x]	Beginning Stipend (Month)
University of Utah Affiliated Hospitals [1-3-359]	Salt Lake City	C. M. Ballinger	7,497	4,488	4	10	225
University of Vermont Affiliated Hospitals							
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	E. Mills	2,463	1,231	1	3	100
Mary Fletcher Hospital [1-3]	Burlington, Vt.	J. Abajian, Jr.	3,507	1,733	4	7	167
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	R. E. Lapointe	1,405	485	1	2	...
University of Virginia Hospital	Charlottesville, Va.	D. E. Eastwood	3,316	4,592	2	4	50
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	W. E. Pembleton	10,387	5,179	..	5	200
Veterans Admin. Hospital [1-3]	Richmond, Va.	C. G. Lynch	3,791	872	1	2	...
Doctor's Hospital [1-3]	Seattle	L. F. Turnbull	5,205	3,119	1	2	250
University of Washington Affiliated Hospitals							
Children's Orthopedic Hospital [1-3]	Seattle	K. Eather	3,374	1,352	..	..	160
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	L. E. Morris	2,984	2,115	4	6	125
Veterans Admin. Hospital [1-3]	Seattle	J. W. Bell	1,053	346	1	2	...
Virginia Mason Hospital [1-3]	Seattle	D. C. Moore	6,315	2,631	3	6	175
Tacoma General Hospital [1-3]	Tacoma, Wash.	J. J. Bonica	5,523	2,762	3	6	200
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	D. E. Greeneltch	6,493	3,541	3	6	300
University Hospitals [1-3]	Madison, Wis.	O. S. Orth	5,881	5,015	6	14	100
Veterans Admin. Hospital [1-3]	Milwaukee, (Wood) Wis.	S. W. Gorens	3,701	1,614	3	5	...
San Juan City Hospital [1-3]	San Juan, P. R.	F. Gonzalez	3,337	1,807	2	4	300

3. AVIATION MEDICINE

The programs in Aviation Medicine which have been approved by the Council and the American Board of Preventive Medicine, through the Residency Review Committee for Preventive Medicine, will be found listed under Preventive Medicine, page 534.

4. CARDIOVASCULAR DISEASES

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Cardiovascular Diseases of the American Board of Internal Medicine.

Hospitals, 50; Assistant Residencies and Residencies, 117

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [x]	Total Residencies Offered [x]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1-3]	San Francisco	T. Inmon	758	29	1	1	...
Fitzsimons Army Hospital [1]	Denver	B. E. Pollock	412	8	1	1	...
Army Medical Center [1-3]	Washington, D. C.	T. W. Mattingly	476	34	2	2	...
Brooke Army Hospital [1-3]	San Antonio, Texas	W. J. Walker	952	37	2	2	...
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Bethesda, Md.	R. J. Pearson	697	..	1	1	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1-3]	Washington, D. C.	J. B. Johnson	416	32	1	2	...
NONFEDERAL AND VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	E. Temkin	791	61	..	1	...
Veterans Admin. Hospital	Los Angeles	M. L. Pearce	977	96	..	3	...
University of California Hospital [1-3]	San Francisco	H. D. Brainerd	Incl. in Int. Med.		..	..	210
Veterans Admin. Hospital [1-3]	West Haven, Conn.	M. Calabresi	292	20	..	1	...
George Washington University Hospital [1-3]	Washington, D. C.	J. M. Evans	460	32	1	3	150
Jackson Memorial Hospital [1-3]	Miami, Fla.	R. J. Boucek	...	..	2	8	...
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	S. Claiborne	703	52	..	1	275
Children's Memorial Hospital [1-3]	Chicago	R. A. Miller	301	40	2	2	...
Michael Reese Hospital	Chicago	L. N. Katz	920	43	5	10	...
Mount Sinai Hospital [1-3]	Chicago	A. A. Luisada	672	19	1	1	125
Indianapolis General Hospital [1]	Indianapolis	K. G. Kohlstaedt	345	38	1	1	300
St. Vincent's Hospital [1-3]	Indianapolis	A. B. Richter	431	24	1	1	417
University of Kansas Medical Center [1-3]	Kansas City, Kan.	E. G. Dimond	406	20	2	2	125
Beth Israel Hospital [1-3]	Boston	H. L. Blumgart	Incl. in Int. Med.		2	2	58
Peter Bent Brigham Hospital [1-3]	Boston	G. W. Thorn	Incl. in Int. Med.		..	8	...
Henry Ford Hospital [1-3]	Detroit	J. W. Keyes	1,655	86	3	3	225
Mayo Foundation [1-3]	Rochester, Minn.	R. D. Pruitt	Incl. in Int. Med.		..	..	175
University of Nebraska Hospital	Omaha	R. L. Grissom	200	22	1	1	200
Buffalo General Hospital [1-3-239]	Buffalo	E. J. Lippschutz	Incl. in Int. Med.		1	1	200
Irvington House	Irvington, N. Y	A. C. De Graff-H. F. Wood	271	..	..	3	250
Lenox Hill Hospital [1-3]	New York City	C. E. Kossmann	Incl. in Int. Med.		1	1	180
Memorial Center for Cancer and Allied Diseases		J. La Due	425	..	..	1	300
James Ewing Hospital [1-3]	New York City		...	..	..	..	...
Memorial Hospital [1-3]	New York City		...	..	..	..	...
Mount Sinai Hospital [1-3]	New York City	C. K. Friedberg	546	36	2	6	75
St. Luke's Hospital	New York City	G. J. Coffin	Incl. in Int. Med.		2	2	125
St. Fr	Roslyn, N. Y.	W. J. Noble	341	7	5	5	250
Duke	Durham, N. C.	E. S. Orgain	331	13	..	3	300
University of Cincinnati College of Medicine Hospital Group							
Cincinnati General Hospital [1-3]	Cincinnati		Incl. in Int. Med.		..	..	...
St. Mary's Hospital [1-3]	Cincinnati	R. J. Anzinger	325	45	1	1	300
Cleveland Clinic Hospital [1-3]	Cleveland	A. C. Ernstene	1,516	82	..	6	250
University Hospitals [1-3]	Cleveland	W. Pritchard	Incl. in Int. Med.		..	2	183
Ohio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	R. W. Kissane	Incl. in Int. Med.		..	1	252
White Cross Hospital [1-3]	Columbus, Ohio	R. W. Kissane	300	27	1	1	200
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	S. Bellet	199	3	2	2	...
Pennsylvania Hospital [1-3]	Philadelphia	J. B. Vander Veer	Incl. in Int. Med.		2	2	20
Philadelphia General Hospital [2]	Philadelphia	S. Bellet	Incl. in Int. Med.		5	8	121
Temple University Hospital [1-3]	Philadelphia	L. A. Soloff	Incl. in Int. Med.		3	3	...
Veterans Admin. Hospital [1-3]	Philadelphia	B. H. Pastor	692	92	..	1	...
Health Center Hospitals of the University of Pittsburgh							
School of Medicine [1-3]	Pittsburgh	J. D. Myers	556	42	2	2	175
St. Francis General Hospital and Rehabilitation Institute [1-3]	Pittsburgh	A. P. D'Zmura	624	42	..	1	250
Rhode Island Hospital [1-3]	Providence, R. I.	F. B. Cutts	6,432	..	1	1	150
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. R. Herrmann	Incl. in Int. Med.		1	3	160
Veterans Admin. Hospital [1-3]	Richmond, Va.	W. T. Thompson, Jr.	1,064	52	..	2	...
University Hospitals [1-3]	Madison, Wis.	C. W. Crumpton	Incl. in Int. Med.		2	2	300

Numerical and other references will be found on pages 556 through 559.

5. DERMATOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Dermatology, Inc., through the Residency Review Committee for Dermatology, as offering acceptable training in the specialty.

Hospitals, 74; Assistant Residencies and Residencies, 298.

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (years)	[illegible]
UNITED STATES ARMY								
Letterman Army Hospital [1-3]	San Francisco	R. Williams	193	12,231	2	4	3	...
Army Medical Center [1-3]	Washington, D. C.	R. S. Higdon	293	17,761	4	12	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	G. Prazak	203	13,836	3	9	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	San Diego, Calif.	W. N. New	418	16,160	3	6	3	...
U. S. Naval Hospital [1]	Philadelphia	J. H. Lockwood	168	6,651	2	4	2	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3-292]	Stapleton, S. I., N. Y.	B. J. Chester	482	7,593	1	3	3	...
NONFEDERAL AND VETERANS ADMINISTRATION								
University of Alabama Medical Center								
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	R. O. Noojin	81	2,182	1	4	3	13
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	P. G. Reque	56	4,738	1	1	1	25
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	S. W. Becker	388	3,865	1	3	3	...
Los Angeles County Hospital [1]	Los Angeles	M. Obermeyer	650	7	1	3	3	25
University of California Hospital [1-3]	Los Angeles	J. S. Lawrence	21	3,100	..	3	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	E. T. Wright	781	19,671	4	7	3	...
White Memorial Hospital [1-3]	Los Angeles	M. Couperus	17	4,722	1	2	2	15
Stanford University Hospitals [1-3]	San Francisco	E. M. Farber	116	7,723	2	4	3	8
University of California Hospital [1-3]	San Francisco	R. B. Rees	51	7,154	1	4	3	29
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	O. S. Philpott	10	3,449	1	1	3	18
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	A. B. Lerner	192	4,042	1	1	2	5
Jackson Memorial Hospital [1-3]	Miami, Fla.	H. Blank	36	3,086	1	4	3	...
Cook County Hospital [1-3]	Chicago	S. M. Bluefarb	759	10,610	1	3	3	10
Northwestern University Medical Center [1-3]	Chicago	H. Rattner	...	6,155	2	6	3	...
University of Chicago Clinics [1-3]	Chicago	S. Rothman	161	8,213	3	9	3	36
University of Illinois Research and Educational Hospitals [1-3]	Chicago	M. R. Caro	68	11,883	1	2	3	15
Veterans Admin. Hospital [1]	Hines, Ill.	A. Rostenberg	649	.....	2	2	1	...
Indianapolis General Hospital [1]	Indianapolis	J. E. Dalton	40	6,087	1	3	3	35
State University of Iowa Hospitals [1-3]	Iowa City	R. Nomland	346	4,333	1	3	3	10
Charity Hospital of Louisiana	New Orleans	V. M. Henington-C. B. Kennedy-J. W. Burks, Jr.	481	28,090	4	11	3	10
University Hospital [1-3]	Baltimore	H. M. Robinson, Jr.	14	.....	1	5	3	7
Veterans Admin. Hospital [1-3-157]	Fort Howard, Md.	M. Sullivan	79	2	3	3	3	...
Boston City Hospital [1-3]	Boston	B. Appel	80	15,980	1	3	3	32
Massachusetts General Hospital [1-3]	Boston	C. N. Frazier	218	11,480	1	2	3	6
Massachusetts Memorial Hospitals [1-3]	Boston	H. Meseon	...	4,679	2	7	2	10
University Hospital [1-3-189]	Ann Arbor, Mich.	A. C. Curtis	705	7,470	4	12	3	15
Henry Ford Hospital [1-3]	Detroit	C. S. Livingood	402	31,466	4	12	3	25
Receiving Hospital [1-3]	Detroit	L. Shaffer	3	7,033	2	8	3	30
Minneapolis General Hospital [1-3]	Minneapolis	C. W. Laymon	235	4,900	1	2	3	25
University of Minnesota Hospitals [1-3-200]	Minneapolis	F. W. Lynch	142	3,214	..	2	3	15
Veterans Admin. Hospital [1-3]	Minneapolis	H. E. Michelson	190	114	..	2	3	...
Mayo Foundation [1-3]	Rochester, Minn.	L. A. Brunsting	674	25,286	6	18	3	15
Ancker Hospital [1-3]	St. Paul	F. W. Lynch	155	3,328	1	1	3	15
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	W. C. Lobitz, Jr.	177	5,006	1	3	3	25
Kings County Hospital								
Division I [1-3]	Brooklyn, N. Y.	C. T. Chiaramonte	356	10,646	1	2	1	15
Edward J. Meyer Memorial Hospital [1-3-246]	Buffalo	E. D. Osborne	118	4,268	1	3	3	25
Bellevue Hospital Center								
Div. IV – New York University								
Post-Graduate Medical School [264]	New York City	M. Sulzberger	373	19,870	3	7	3	3
Mount Sinai Hospital [1-3]	New York City	S. M. Peck	42	8,193	1	2	2	5
New York Hospital [1-3]	New York City	G. Lewis	...	10,042	1	1	3	14
New York Polyclinic Medical School and Hospital [1-3]	New York City	A. C. Cipollaro	28	5,958	1	3	3	15
New York University-Bellevue Medical Center								
University Hospital (Skin and Cancer)	New York City	M. Sulzberger	174	76,939	2	6	3	25
Presbyterian Hospital [1]	New York City	C. T. Nelson	117	37,066	2	4	3	20
St. Luke's Hospital	New York City	L. P. Barker	41	8,440	1	1	3	10
Veterans Admin. Hospital [1-3]	New York City (Bronx)	H. Spatin	346	2,672	1	3	3	...
Veterans Admin. Hospital [1-3]	New York City (Manhattan)	P. Michaelides	268	1	4	4	3	...
Duke University Hospital [1-3]	Durham, N. C.	J. L. Callaway	180	6,101	1	3	3	12
University of Cincinnati College of Medicine Hospital Group								
Cincinnati General Hospital [1-3]	Cincinnati	L. Goldman	231	1,813	3	7	3	10
City Hospital [1-3]	Cleveland	R. R. Rauschkolb	187	6,810	1	3	3	125
Cleveland Clinic Hospital [1-3]	Cleveland	J. R. Haserick	289	16,291	1	5	3	15
University Hospitals [1-3]	Cleveland	R. Stoughton	81	4,086	1	2	3	15
University of Oklahoma Hospitals [1-3]	Oklahoma City	J. H. Lamb	25	1,959	1	1	3	...
Univ. of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	T. B. Fitzpatrick	106	5,463	1	3	3	16
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa	R. F. Dickey	67	9,932	1	2	3	15
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. Beerman	40	3,714	2	3	3	...
Hahnemann Medical College and Hospital [1-3]	Philadelphia	....	...	.....	..	..	1	...
Hospital of the University of Pennsylvania [1-3]	Philadelphia	D. Pillsbury	118	6,199	4	12	3	...
Jefferson Medical College Hospital [1-3]	Philadelphia	H. B. Decker	9	3,016	1	1	2	10
Pennsylvania Hospital [1-3]	Philadelphia	H. Beerman	...	3,802	1	1	1	5
Philadelphia General Hospital [3]	Philadelphia	C. Burgoon	176	3,935	1	2	1	13
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	J. F. Mullins	109	5,837	2	6	3	16
Baylor University College of Medicine Affiliated Hospitals	....	....	...	.....	..	..	3	...
Jefferson Davis Hospital [1-3]	Houston, Texas	E. R. Seale	15	4,036	1	3	..	7
Methodist Hospital [1-3]	Houston, Texas	M. G. Bloom	6	.....	..	..	..	10
Texas Children's Hospital [1-3]	Houston, Texas	E. R. Seale	18	1,385	..	..	..	...
Veterans Admin. Hospital [1-3]	Houston, Texas	J. M. Knox	...	.....	1	3	..	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	E. P. Cawley	206	8,706	2	6	3	5
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	A. Pepple	5	5,509	..	1	1	12
University Hospitals [1-3]	Madison, Wis.	S. A. M. Johnson	150	4,776	1	1	1	17
Veterans Admin. Hospital [1-3-382]	Milwaukee, (Wood), Wis.	H. R. Foerster	766	6,458	1	8	3	...

Numerical and other references will be found on pages 556 through 559.

6. GASTROENTEROLOGY

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Gastroenterology of the American Board of Internal Medicine.

Hospitals, 33; Assistant Residencies and Residencies, 68

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES ARMY							
tterman Army Hospital [1-3]	San Francisco	E. Kehoe	500	10	1	1	...
my Medical Center [1-3]	Washington, D. C.	B. H. Sullivan, Jr.	304	10	1	1	...
NFEDERAL AND VETERANS ADMINISTRATION							
terans Admin. Hospital [1-3]	Long Beach, Calif.	S. J. Stempien	754	47	..	1	...
terans Admin. Hospital [1-3]	Los Angeles	M. I. Grossman	971	50	1	1	...
iversity of California Hospital [1-3]	San Francisco	T. L. Althausen	Incl. in Int. Med.		2	2	210
terans Admin. Hospital [1-3-33]	West Haven, Conn.	S. Selesnick	305	19	..	2	...
ok County Hospital [1-3]	Chicago	F. Steigmann	2,200	180	2	2	100
terans Admin. Research Hospital [1]	Chicago	J. Swartz	187	2	..	1	...
iversity of Kansas Medical Center [1-3]	Kansas City, Kan.	A. Klotz	30	1	2	2	125
hsner Foundation Hospital [1]	New Orleans	W. B. Davis	191	4	..	1	300
uro Infirmary [1]	New Orleans	M. Kaplan	654	3	1	2	125
th Israel Hospital [1-3]	Boston	L. Zetzel	Incl. in Int. Med.		..	1	300
ahey Clinic [1-3-167]	Boston	S. M. Jordan	1,468	8	8	8	200
ssachusetts Memorial Hospitals [1-3]	Boston	F. Ingelfinger	Incl. in Int. Med.		..	4	...
enry Ford Hospital [1-3]	Detroit	J. G. Mateer	1,323	26	6	6	225
ayo Foundation [1-3]	Rochester, Minn.	J. A. Bargen	Incl. in Int. Med.		..	..	175
wish Hospital [1-3]	Brooklyn, N. Y.	M. J. Matzner	500	22	1	1	100
ount Sinai Hospital [1-3]	New York City	H. D. Janowitz	1,403	21	..	6	75
ew York Polyclinic Medical School and Hospital [1-3]	New York City	S. Weiss	118	4	1	1	125
uke University Hospital [1-3]	Durham, N. C.	J. M. Ruffin	332	..	..	3	250
orth Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	D. Cayer	Incl. in Int. Med.		1	2	125
niversity of Cincinnati College of Medicine Hospital Group							
Cincinnati General Hospital [1-3]	Cincinnati	....	...	..	..	..	...
leveland Clinic Hospital [1-3]	Cleveland	E. N. Collins	487	17	..	1	200
eterans Admin. Hospital [1-3]	Cleveland	H. P. Roth	685	32	1	1	...
hio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	C. J. De Lor	403	9	..	1	252
eterans Admin. Hospital [1-3]	Portland, Ore.	L. W. Ritzmann	448	5	..	1	...
raduate Hospital of The University of Pennsylvania [1-3]	Philadelphia	H. L. Bockus	858	24	2	2	150
ospital of The University of Pennsylvania [1-3]	Philadelphia	T. Machella	Incl. in Int. Med.		2	6	...
efferson Medical College Hospital [1-3]	Philadelphia	J. E. Deitrick	Incl. in Int. Med.		..	2	100
emple University Hospital [1-3]	Philadelphia	H. Shay	Incl. in Int. Med.		..	2	...
eterans Admin. Hospital [1-3]	Memphis, Tenn.	M. L. Gompertz	1,249	24	..	1	...
eterans Admin. Hospital [1-3]	Richmond, Va.	W. T. Thompson, Jr.	864	16	..	2	...
eterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	J. J. Levin	867	34	1	1	...

7. GENERAL PRACTICE

Residency programs in the following hospitals have been approved by the Council and the American Academy of General Practice, through the Residency Review Committee for General Practice, as offering acceptable training in the specialty.

Hospitals, 188; Assistant Residencies and Residencies, 765

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES AIR FORCE								
U. S. Air Force Hospital	Montgomery, Ala.	J. A. Jarman	8,038	58	2	3	2	...
U. S. Air Force Hospital	San Antonio, Texas	P. G. Keil	9,916	39	2	4	2	...
UNITED STATES ARMY								
Ireland Army Hospital	Fort Knox, Ky.	D. L. Deutsch	12,728	53	8	16	2	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	San Diego, Calif.	M. M. Rubin	.....	..	2	4	2	...
U. S. Naval Hospital [1]	Chelsea, Mass.	H. L. Jones, Jr.	.....	..	1	2	2	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	G. G. Burkley	Incl. in Int. Med.		1	2	1	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital	Norfolk, Va.	....	.....	..	..	..	2	...
NONFEDERAL AND VETERANS ADMINISTRATION								
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	C. W. Neville	6,921	61	1	1	2	250
Good Samaritan Hospital [1]	Phoenix, Ariz.	L. M. Dagres	7,943	83	1	2	2	250
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	D. H. Victor	.....	...	6	6	2	250
St. Mary's Hospital and Sanatorium [1-3]	Tucson, Ariz.	A. B. Thompson	5,213	32	2	2	2	200
St. Michael's Hospital [1-3]	Texarkana, Ark.	C. C. Stuart	6,808	28	1	2	2	250
General Hospital of Riverside County [1]	Arlington, Calif.	....	2,863	40	5	5	1	444
Kern County General Hospital [1]	Bakersfield, Calif.	J. L. Forney	.....	...	4	4	1	325
St. Mary's Long Beach Hospital [3]	Long Beach, Calif.	F. L. Bowton	16,516	113	2	4	2	300
Los Angeles County Hospital [1]	Los Angeles	W. D. Evans-L. Rosoff	.....	...	2	3	2	246
Contra Costa County Hospital [1-3]	Martinez, Calif.	H. B. Flanders	.....	...	10	10	2	470
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	H. S. Holmboe	.....	...	4	4	2	265
Sacramento County Hospital [1]	Sacramento, Calif.	D. Ernest	13,877	523	8	12	2	300
Monterey County Hospital [1]	Salinas, Calif.	W. A. Cassidy	3,306	160	7	7	2	500
Sonoma County Hospital [1-3]	Santa Rosa, Calif.	H. D. Stailey	3,830	111	9	9	2	425
Tulare County General Hospital [1]	Tulare, Calif.	G. D. Lavers	3,387	117	7	7	2	400
Glockner-Penrose Hospital [1-3]	Colorado Springs, Colo.	M. Berthrong	6,149	116	2	4	2	200
St. Francis Hospital [1-3]	Colorado Springs, Colo.	R. W. Urich	5,919	70	2	2	1	210
University of Colorado Medical Center		....	.....	...	8	12	..	180
Colorado General Hospital [1-3]	Denver	C. W. Eisele	.....	...	..	..	2	...
Denver General Hospital [1-3]	Denver	....	.....	...	..	..	2	...
Bridgeport Hospital	Bridgeport, Conn.	....	.....	...	..	..	2	...
Greenwich Hospital [1-3]	Greenwich, Conn.	G. Carter	7,823	132	1	1	1	150
Charlotte Hungerford Hospital	Torrington, Conn.	M. E. Giobbe	.....	...	2	4	2	100
Wilmington General Hospital [1-3]	Wilmington, Del.	F. S. Skura	7,256	76	4	6	1	200
Eastern Dispensary and Casualty Hospital [3]	Washington, D. C.	J. R. Young	4,744	27	9	9	2	300
Halifax District Hospital [1-3]	Daytona Beach, Fla.	F. A. Sica	7,593	112	..	4	2	320
Baptist Memorial Hospital [1-3]	Jacksonville, Fla.	A. M. Manson	10,432	78	2	5	2	325
St. Luke's Hospital [1-3]	Jacksonville, Fla.	E. E. Leitner	Incl. in Int. Med.		2	3	2	300
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	L. M. Wachtel	.....	...	2	4	2	225
Baptist Hospital [1-3]	Pensacola, Fla.	J. R. Emlet	.....	...	2	4	2	200
Sacred Heart Hospital [1-3]	Pensacola, Fla.	A. H. Northrup	.....	...	3	3	2	200
Mound Park Hospital [1-3]	St. Petersburg, Fla.	H. R. Cushman	1,327	45	1	2	2	250
Grady Memorial Hospital [1-3]	Atlanta, Ga.	I. A. Ferguson	.....	...	8	8	2	100

Numerical and other references will be found on pages 556 through 559.

7. GENERAL PRACTICE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)
Medical Center [1-3]	Columbus, Ga.	E. B. Horn	10,573	135	4	4	1
Macon Hospital [1]	Macon, Ga.	E. C. McMillan	15,168	...	..	8	2
St. Joseph's Hospital [1-3]	Alton, Ill.	H. Halley	8,778	115	4	7	1
Mac Neal Memorial Hospital [1-3]	Berwyn, Ill.	F. W. Knoch	2,792	80	5	5	1
Grant Hospital [1]	Chicago	R. M. Mandel	.....	...	1	2	2
Illinois Masonic Hospital [1-3]	Chicago	J. Poticha	3,860	47	1	1	2
St. Mary of Nazareth Hospital [1-3]	Chicago	S. A. Motto	10,144	113	1	2	2
South Shore Hospital [1-3]	Chicago	S. H. Gumbiner	6,899	49	2	2	1
Decatur and Macon County Hospital	Decatur, Ill.	A. F. Williams	4,501	57	2	2	1
Methodist Hospital of Central Illinois [3]	Peoria, Ill.	H. G. Johnson	2,274	69	3	3	1
St. Francis Hospital [1]	Beech Grove, Ind.	G. L. Jones	.....	...	4	4	2
Methodist Hospital [1-3]	Gary, Ind.	M. Shellhouse	12,582	186	1	2	2
St. Margaret Hospital	Hammond, Ind.	F. G. Rudolph	14,820	138	2	4	2
Methodist Hospital [1]	Indianapolis	D. Hampshire	27,251	239	2	3	2
Memorial Hospital	South Bend, Ind.	M. Feldman	12,027	143	2	2	2
St. Luke's Methodist Hospital [1-3]	Cedar Rapids, Iowa	R. M. Chapman	13,164	141	6	6	2
Broadlawns-Polk County Hospital [1]	Des Moines, Iowa	V. L. Schlaser	.....	...	2	2	1
St. Francis Hospital [1-3]	Wichita, Kan.	L. I. Wright	4,202	38	2	2	1
Wesley Hospital [1-3]	Wichita, Kan.	J. Tiller	4,520	24	1	1	2
William Booth Memorial Hospital [3]	Covington, Ky.	C. W. Kumpe	818	16	3	6	2
St. Anthony Hospital [1-3]	Louisville, Ky.	J. R. Buskirk	8,325	85	1	2	2
Lafayette Charity Hospital [1]	Lafayette, La.	E. Hull	2,095	58	16	16	1
St. Patrick's Hospital	Lake Charles, La.	L. L. DiGiglia	6,929	...	2	4	2
Huey P. Long Charity Hospital	Pineville, La.	J. M. Roberts	8,626	70	11	11	1
Bon Secours Hospital [3]	Baltimore	F. J. Geraghty	802	26	1	2	2
Doctors Hospital [1-3]	Baltimore	W. Anderson	4,496	28	5	10	2
University Hospital [1-3]	Baltimore	T. E. Woodward	Incl. in Int. Med.		2	4	2
Suburban Hospital [1-3]	Bethesda, Md.	W. F. Joyce	6,722	134	2	4	2
New England Hospital [1-3]	Boston	R. A. Draper	.....	...	2	4	2
St. Anne's Hospital	Fall River, Mass.	J. C. Corrigan	5,774	42	4	4	1
Cooley Dickinson Hospital [1-3]	Northhampton, Mass.	L. N. Durgin	7,345	42	4	4	1
Oakwood Hospital [1-3]	Dearborn, Mich.	R. J. Hall	11,736	124	4	8	2
Brent General Hospital [1-3]	Detroit	C. Rottenberg	6,826	35	3	6	2
Evangelical Deaconess Hospital [1-3]	Detroit	W. P. Curtiss	.....	...	2	3	2
Henry Ford Hospital [1-3]	Detroit	J. G. Mateer	24,321	602	2	4	2
Lynn Hospital [1-3]	Detroit	E. W. Erickson	3,498	28	6	12	2
North Detroit General Hospital [1-3]	Detroit	B. L. Leiberman	4,650	27	2	4	2
Hurley Hospital [1-3]	Flint, Mich.	L. G. Bateman	.....	...	2	4	1
McLaren General Hospital [1]	Flint, Mich.	W. W. Bruce	3,115	42	3	3	2
St. Joseph Hosp'tal [1-3]	Flint, Mich.	J. Gutow	15,646	223	6	9	2
Borgess Hospital [1]	Kalamazoo, Mich.	I. W. Brown	4,553	32	2	4	2
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	H. Arnkoff	.....	...	4	4	2
St. Luke's Hospital [1-3]	Saginaw, Mich.	L. J. Morgrette	7,222	81	2	2	2
St. Mary's Hospital	Saginaw, Mich.	T. E. Fleschner	5,423	77	1	2	2
Wyandotte General Hospital [1]	Wyandotte, Mich.	R. M. Knox	10,655	86	4	8	2
Fairview Hospital [1-3]	Minneapolis	D. Amatuzio	2,502	63	3	3	1
Lutheran Deaconess Home and Hospital [1-3]	Minneapolis	L. Benesh	8,312	91	2	3	2
Midway Hospital [3]	St. Paul	A. E. Ritt	7,765	83	3	3	1
Mississippi Baptist Hospital [1-3]	Jackson, Miss.	R. T. Cates	10,537	96	1	2	2
University Hospital [1]	Jackson, Miss.	L. F. Rittelmeyer	7,236	197	1	2	2
Mercy Hospital-Street Memorial [1]	Vicksburg, Miss.	T. H. Mitchell	2,567	20	1	2	1
Menorah Medical Center [1-3]	Kansas City, Mo.	L. M. Shapiro	.....	...	2	3	2
Missouri Methodist Hospital [1]	St. Joseph, Mo.	O. W. D. Craig	4,190	67	2	2	1
De Paul Hospital [1-3]	St. Louis	W. A. Spoeneman	.....	...	..	..	2
Evangelical Deaconess Hospital [1-3]	St. Louis	R. B. Bassett	8,634	98	3	6	2
Lutheran Hospital [1-3]	St. Louis	P. M. Parashak	5,413	76	4	4	2
St. Anthony's Hospital [1-3]	St. Louis	G. O'Sullivan	3,392	...	3	6	2
Butte Community Memorial Hospital [1-3]	Butte, Mont.	G. I. Podobnikar	.....	...	2	6	2
Immanuel Hospital [1-3]	Omaha	C. C. Madsen	6,202	66	1	2	2
Hunterdon Medical Center [1-3]	Flemington, N. J.	E. D. Pellegrino	1,339	98	2	2	2
Mountainside Hospital [1-3-226]	Montclair, N. J.	B. S. Perham	.....	...	1	2	2
Morristown Memorial Hospital [1-3]	Morristown, N. J.	R. Earp	Incl. in Int. Med.		1	2	2
Princeton Hospital [1-3]	Princeton, N. J.	B. B. Scasserra	5,966	108	2	4	1
Overlook Hospital [3]	Summit, N. J.	L. J. Anson	10,693	...	1	1	1
Mercy Hospital [1-3]	Buffalo	C. F. Banas	13,160	188	3	3	2
Millard Fillmore Hospital [1-3]	Buffalo	M. Cheplove	1,106	27	2	2	1
St. Joseph's Hospital	Far Rockaway, N. Y.	F. Herrman	8,541	52	5	10	2
Kingston Hospital [3]	Kingston, N. Y.	H. L. Rakov	5,222	56	2	3	1
Our Lady of Victory Hospital [3]	Lackawanna, N. Y.	L. J. Makarewicz	9,268	68	2	2	2
Mercy Hospital [1-3]	Charlotte, N. C.	C. W. Robinson	.....	...	4	4	2
City Memorial Hospital [1-3]	Winston-Salem, N. C.	....	.....	...	1	2	2
Akron City Hospital [1-3]	Akron, Ohio	J. A. Campbell	22,368	348	2	4	3
Akron General Hospital [1]	Akron, Ohio	H. A. Karam	16,665	205	4	10	2
St. Thomas Hospital [1-3]	Akron, Ohio	M. F. Bossart	.....	...	2	4	2
Barberton Citizens Hospital [1-3]	Barberton, Ohio	A. A. Brown	10,936	101	3	6	2
Mercy Hospital [1-3]	Canton, Ohio	J. G. Hendershot	.....	32	2	4	2
Christ Hospital [1]	Cincinnati	J. L. Lindner	.....	...	4	8	2
Good Samaritan Hospital [1-3]	Cincinnati	J. D. Marioni	Incl. in Int. Med		4	4	2
Woman's Hospital [1-3]	Cleveland	....	7,192	43	4	8	1
Mount Carmel Hospital [1]	Columbus, Ohio	J. H. Henry	1,128	49	3	3	2
St. Anthony's Hospital [1-3]	Columbus, Ohio	W. F. Mitchell	5,483	78	6	6	1
White Cross Hospital [1-3-312]	Columbus, Ohio	W. P. Smith, Jr.	Incl. in Int. Med.		1	1	2
Good Samaritan Hospital [1-3]	Dayton, Ohio	R. E. Wahl	15,411	128	2	4	1
Miami Valley Hospital [1-3]	Dayton, Ohio	W. C. Madden	.....	...	4	4	2
Elyria Memorial Hospital	Elyria, Ohio	T. E. Finegan	3,592	40	5	5	2
Euclid-Glenville Hospital [1-3]	Euclid, Ohio	J. B. Price	10,001	70	6	10	1
Lima Memorial Hospital [1-3]	Lima, Ohio	W. E. Noble	10,797	103	4	5	2
St. Rita's Hospital [1-3]	Lima, Ohio	J. A. Glorioso	2,165	48	1	2	2
Ohio Valley Hospital [1-3]	Steubenville, Ohio	D. J. Myers	11,194	78	1	2	2
Mercy Hospital [1-3]	Toledo, Ohio	H. J. Murphy	1,843	46	1	2	2
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. A. Schnitker	.....	...	1	2	2
Toledo Hospital [1-3]	Toledo, Ohio	C. S. Mundy	5,238	77	1	3	2
Youngstown Hospital [1-3]	Youngstown, Ohio	J. L. Fisher	8,141	152	1	2	2
University of Oklahoma Hospitals [1-3-323]	Oklahoma City	Dir. of Postgrad. Ed.	.....	...	6	6	2
St. Vincent's Hospital [1-3]	Portland, Ore.	G. T. Harpole	14,393	178	1	2	1
Altoona Hospital	Altoona, Pa.	R. S. Magee	2,108	61	1	3	2
St. Luke's Hospital [1-3]	Bethlehem, Pa.	P. Budurn	.....	...	1	1	1
Bradford Hospital [1-3]	Bradford, Pa.	C. L. Luckett	1,703	28	..	2	2
Chester Hospital [1-3]	Chester, Pa.	....	9,244	270	2	4	2
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	W. J. Stainsby	.....	...	1	2	2
Thomas M. Fitzgerald Mercy Hospital [1-3]	Darby, Pa.	D. T. Sullivan	14,498	160	1	1	1
St. Joseph's Hospital [1]	Lancaster, Pa.	C. H. Witmer	3,378	84	5	5	2
Montgomery Hospital	Norristown, Pa	S. C. Carfagno	4,556	84	2	2	1

Numerical and other references will be found on pages 556 through 559.

7. GENERAL PRACTICE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
cred Heart Hospital [1-2-332]	Norristown, Pa.	J. C. McLoone	6,545	75	4	4	1	350
Mary's Hospital [1-2]	Philadelphia	J. Daly	.....	...	4	8	2	250
Clair Memorial Hospital	Pittsburgh	H. Hartman	4,774	45	2	4	2	300
John's General Hospital [1-3]	Pittsburgh	D. B. Wolfe	6,403	99	1	1	1	300
C. Milliken Hospital	Pottsville, Pa.	N. M. Wall	6,180	68	3	6	2	400
ommunity General Hospital [1-3]	Reading, Pa.	C. S. Kring	2,050	60	..	2	2	300
haron General Hospital [3]	Sharon, Pa.	E. C. Falk	12,487	85	4	8	2	200
emorial Hospital [1-2]	Pawtucket, R. I.	E. J. Mara	.....	...	2	4	2	250
reenville General Hospital [1-3]	Greenville, S. C.	M. G. Howle	6,433	137	2	3	2	250
partanburg General Hospital [1]	Spartanburg, S. C.	W. T. Hendrix	18,826	140	3	3	2	200
ioux Valley Hospital [1-3]	Sioux Falls, S. D.	G. M. Jameson	2,435	31	2	3	2	200
acred Heart Hospital [1]	Yankton, S. Dak.	T. Sattler	13,126	56	4	4	2	300
t. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	J. Raulston	12,482	106	2	2	2	250
aptist Hospital [1-3]	Nashville, Tenn.	J. P. Lindsay	.....	...	3	3	1	175
ll Saints Hospital [1-2]	Fort Worth, Texas	E. Davenport	6,369	48	4	4	1	250
ohn Peter Smith Hospital [1-3]	Fort Worth, Texas	D. E. Compere	4,752	174	5	5	1	200
t. Mary's Infirmary [1-2]	Galveston, Texas	M. L. Ross	.....	...	10	13	2	200
emorial Hospital [1-3]	Houston, Texas	B. Walpole	20,219	100	6	12	2	275
an Travis Memorial Hospital [1-2]	Jacksonville, Texas	J. M. Travis	5,381	33	1	2	2	250
aptist Memorial Hospital [1-3]	San Antonio, Texas	L. B. Jones	9,342	127	1	2	2	150
obert B. Green Memorial Hospital [1-3]	San Antonio, Texas	L. B. Reppert	9,290	209	1	2	1	150
anta Rosa Hospital [1-2]	San Antonio, Texas	C. McGehee	.....	...	1	2	2	250
ichita General Hospital [1-3]	Wichita Falls, Texas	J. B. Hathorn	9,744	91	3	3	1	300
t. Benedict's Hospital [1-2]	Ogden, Utah	L. D. Nelson	6,590	76	4	4	1	275
homas D. Dee Memorial Hospital [1-3]	Ogden, Utah	R. Johnston	12,168	116	3	5	2	300
niversity of Vermont Affiliated Hospitals								
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	A. B. Lawrence	.....	...	1	2	2	180
iverside Hospital [1-2]	Newport News, Va.	W. H. Huffstetler	.....	...	4	4	1	250
e Paul Hospital [1-2]	Norfolk, Va.	I. Hancock	.....	...	1	2	2	200
orfolk Community Hospital	Norfolk, Va.	G. H. Francis	3,343	46	2	4	2	300
orfolk General Hospital [1-3]	Norfolk, Va.	J. G. Price	.....	...	4	4	1	125
etreat for the Sick [1-3]	Richmond, Va.	A. A. Houser	733	9	3	3	2	200
Louise Obici Memorial Hospital [1-3]	Suffolk, Va	P. Thomas	.....	...	..	3	1	300
Providence Hospital [1-3]	Seattle	S. J. Minkove	14,761	183	4	4	1	250
Sacred Heart Hospital [2]	Spokane, Wash.	R. M. O'Brien	26,197	255	4	4	1	250
St. Luke's Hospital [1-2]	Spokane, Wash.	A. T. Perry	2,881	...	2	2	2	225
Bluefield Sanitarium [2]	Bluefield, W. Va.	J. R Shanklin	2,191	25	4	4	1	500
Charleston General Hospital [1-2]	Charleston, W. Va.	M. Barber	Incl. in Int. Med.		2	2	2	225
Memorial Hospital [1-3]	Charleston, W. Va.	J. W. Hash	.....	...	1	1	1	250
Camden Clark Memorial Hospital [2]	Parkersburg, W. Va.	W. R. Yeager	5,929	56	1	2	2	200
St. Joseph's Hospital	Parkersburg, W. Va.	J. C. Bryce	8,587	96	1	1	2	300
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	A. J. Niehaus	2,952	33	2	4	2	300
Luther Hospital [1-2]	Eau Claire, Wis.	R. R. Richards	8,449	111	2	2	1	300
Evangelical Deaconess Hospital [1-2]	Milwaukee	M. A. Jochimsen	4,427	42	3	3	2	250
Milwaukee Hospital [1-2]	Milwaukee	E. R. Daniels	.....	...	1	1	1	245
St. Luke's Hospital [1-2]	Milwaukee	M. Landsberg	6,669	102	1	2	2	275
St. Michael Hospital [1-3]	Milwaukee	A. Verdone	5,013	70	3	4	2	250

8. INTERNAL MEDICINE

Residency programs in the following hospitals have been approved by the Council, the American Board of Internal Medicine, and the American College of Physicians through the Residency Review Committee for Internal Medicine, as offering acceptable training in the specialty under any of the several programs leading to eligibility for examination by the American Board of Internal Medicine.

Hospitals, 600; Assistant Residencies and Residencies, 5,342

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES AIR FORCE								
U. S. Air Force Hospital	San Antonio, Texas	P. G. Keil	2,164	13	5	15	3	...
UNITED STATES ARMY								
Letterman Army Hospital [1-3]	San Francisco	F. Mowrey	4,353	56	5	15	3	...
Fitzsimons Army Hospital [1]	Denver	G. M. Powell	1,977	18	3	9	3	...
Army Medical Center [1-3]	Washington, D. C.	F. W. Pruitt	1,398	58	7	22	3	...
William Beaumont Army Hospital	El Paso, Texas	R. C. Hunter, Jr.	7,538	83	2	6	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	D. J. Sheehan	3,281	119	7	21	3	...
Madigan Army Hospital	Tacoma, Wash.	J. R. Vivas	1,102	6	2	2	1	...
Tripler Army Hospital [1]	Honolulu, T. H.	W. C. Berry	8,902	63	5	15	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Oakland, Calif.	R. O. Canada, Jr.	3,190	52	2	6	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	A. L. Lawler	2,051	112	4	12	3	...
U. S. Naval Hospital [1-2]	Great Lakes, Ill.	G. M. Davis	3,360	20	1	2	2	...
U. S. Naval Hospital [1-2]	Bethesda, Md.	R. C. Parker, Jr.	977	...	3	9	3	...
U. S Naval Hospital [1]	Chelsea, Mass.	H. L. Jones, Jr.	1,957	26	2	6	3	...
U. S Naval Hospital [1]	St. Albans, N. Y.	G. L. Calvy	2,127	18	2	6	3	...
U. S. Naval Hospital [1]	Philadelphia	J. S. Cowan	2,489	73	3	9	3	...
U. S Naval Hospital [1-2]	Portsmouth, Va.	G. G. Burkley	4,807	34	3	9	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital	San Francisco	A. A. Doerner	2,282	42	1	3	3	...
U. S. Public Health Service Hospital [1-3]	New Orleans	R. H. Linn	3,362	32	1	3	3	...
U. S Public Health Service Hospital [1-3]	Baltimore	G. F. Ellinger	1,823	25	2	6	3	...
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md	L. Terry	319	10	..	12	1	...
U. S. Public Health Service Hospital [1-177]	Boston	D. J. Tenenberg	2,373	31	1	3	3	...
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y	C. G. Spicknall	2,026	58	3	9	3	...
U. S. Public Health Service Hospital [1-3]	Seattle	W. H. Stimson	1,449	33	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-2]	Washington, D. C.	J. B. Johnson	1,004	79	4	9	3	218
NONFEDERAL AND VETERANS ADMINISTRATION								
Carraway Methodist Hospital [1-2]	Birmingham, Ala.	E. D. Lineberry-O. C. McCarn	2,166	36	1	3	3	250
University of Alabama Medical Center		....	.....	...	..	..	3	...
University Hospital and		T. R. Harrison	4,806	158	16	40	..	108
Veterans Admin. Hospital		E. E. Eddleman, Jr.	502	34	3	18	..	...

Numerical and other references will be found on pages 556 through 559.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	[illegible]
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	C. E. Porter	3,281	65	2	6	3	[illegible]
Mobile County Hospital [1-3]	Mobile, Ala.	G. O. Segrest	1,335	78	2	2	1	[illegible]
Veterans Admin. Hospital [1-3-50]	Tuskegee, Ala.	E. T. Odom	1,990	61	4	5	3	[illegible]
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	M. H. Green	959	67	1	3	3	[illegible]
St. Joseph's Hospital [1-3]	Phoenix, Ariz.	B. Frissell	2,075	46	1	3	3	[illegible]
St. Mary's Hospital and Sanatorium [1-3]	Tucson, Ariz.	L. J. Kent	3,736	42	3	3	1	[illegible]
University Hospital [1]	Little Rock, Ark.	R. V. Ebert	986	93	6	14	3	[illegible]
Veterans Admin. Hospital [1-3-55]	Little Rock, Ark.	H. R. Hipp	3,406	138	3	6	3	[illegible]
General Hospital of Riverside County [1]	Arlington, Calif.	....	1,339	118	1	1	1	[illegible]
Kern County General Hospital [1]	Bakersfield, Calif.	J. Brackley	2,384	211	4	8	3	[illegible]
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. I. Harvey	2,128	77	1	3	3	[illegible]
City of Hope Medical Center [1-3]	Duarte, Calif.	R. L. Byron, Jr.	233	52	..	2	1	[illegible]
San Joaquin General Hospital [1]	French Camp, Calif.	L. Armanino	1,342	179	2	5	3	[illegible]
General Hospital of Fresno County [1-3]	Fresno, Calif.	M. J. Fiese	2,987	144	2	6	3	[illegible]
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	D. L. John	1,837	183	2	4	3	[illegible]
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	A. H. Buell	4,093	106	1	3	3	[illegible]
Veterans Admin. Hospital [1-3-58]	Long Beach, Calif.	D. W. Leik	2,725	253	9	27	3	[illegible]
California Hospital [1-3-60]	Los Angeles	W. F. Wessels	3,469	119	3	5	3	[illegible]
Cedars of Lebanon Hospital [1-3]	Los Angeles	J. Reynolds-L. Gunther	4,395	141	3	9	3	[illegible]
Hospital of the Good Samaritan [3]	Los Angeles	J. L. Reynolds	3,352	78	2	6	3	[illegible]
Los Angeles County Hospital [1]	Los Angeles	W. Graf	22,393	1,014	16	42	3	[illegible]
Presbyterian Hospital-Olmsted Memorial [1-3]	Los Angeles	J. MacDonald	2,762	64	3	3	1	[illegible]
Queen of Angels Hospital [1-3]	Los Angeles	R. J. Brotchner	4,853	158	1	3	2	[illegible]
St. Vincent's Hospital [3]	Los Angeles	E. W. Boland	2,318	57	1	1	1	[illegible]
University of California Hospital [1-3]	Los Angeles	J. S. Lawrence	1,368	64	6	13	3	[illegible]
Veterans Admin. Hospital [1-3]	Los Angeles	L. Fred	3,666	299	20	51	3	[illegible]
White Memorial Hospital [1-3]	Los Angeles	V. J. Johns, Jr.	1,313	62	2	5	3	
Highland-Alameda County Hospital [1-69]	Oakland, Calif.	T. C. McCleave, Jr.	5,508	199	4	11	3	
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	P. J. Raimondi	1,872	128	6	9	3	
Collis P. and Howard Huntington Memorial Hospital [1-3]	Pasadena, Calif.	R. M. Shelton	2,473	140	1	3	3	
San Bernardino County Charity Hospital	San Bernardino, Calif.	W. L. Cover	1,422	179	4	4	1	
Mercy Hospital [1-3]	San Diego, Calif.	E. M. Fetter	2,965	79	1	3	3	
San Diego County General Hospital [1-3]	San Diego, Calif.	A. M. Bassett	2,096	197	4	7	3	
Children's Hospital [1-3]	San Francisco	P. M. Aggeler	552	16	1	2	2	
Franklin Hospital [1-3]	San Francisco	C. D. Mote	1,764	28	3	3	1	
French Hospital [1-3]	San Francisco	D. L. Wilbur	1,909	48	3	4	2	
Kaiser Foundation Hospital [1-3]	San Francisco	C. C. Herbert	1,266	91	4	12	3	
Mary's Help Hospital [1-3]	San Francisco	F. Rochex	1,395	34	1	2	1	
Mount Zion Hospital [1-3]	San Francisco	J. J. Sampson	2,029	52	3	6	3	
St. Joseph's Hospital [1-3]	San Francisco	M. E. Leonard	2,180	48	1	1	1	
St. Luke's Hospital [1-3]	San Francisco	E. Bruck	4,964	81	2	4	3	
St. Mary's Hospital [1-3]	San Francisco	J. J. McGinnis	2,613	74	2	5	3	
Stanford University Service [1-3]	San Francisco	J. K. Lewis	2,383	140	4	8	3	
University of California Service [1-3]	San Francisco	I. S. Edelman	2,525	157	5	7	3	
Southern Pacific General Hospital [1-3]	San Francisco	R. E. Allen	4,041	29	2	5	3	
Stanford University Hospitals [1-3]	San Francisco	D. A. Rytand	2,070	137	5	12	3	
University of California Hospital [1-3]	San Francisco	H. D. Brainerd	2,539	92	8	19	3	
Veterans Admin. Hospital [1-3]	San Francisco	F. M. Willett	1,556	109	14	23	2	
Santa Clara County Hospital [1-3]	San Jose, Calif.	J. M. Stone	1,241	223	3	7	3	
Community Hospital of San Mateo County [1]	San Mateo, Calif.	W. F. Knorp	774	69	3	5	2	[illegible]
Santa Barbara Cottage Hospital [1-3-81]	Santa Barbara, Calif.	T. K. Hill	1,960	60	3	6	3	[illegible]
Harbor General Hospital [1-82]	Torrance, Calif.	E. M. Duvall-F. Kellogg	3,931	296	8	24	3	[illegible]
Mercy Hospital [1-3]	Denver	A. W. Mutz	3,766	52	2	2	1	[illegible]
Presbyterian Hospital [1-3]	Denver	H. A. Bradford	1,647	71	1	3	2	[illegible]
St. Joseph's Hospital	Denver	T. H. Mahony	1,730	60	3	6	3	[illegible]
St. Luke's Hospital [1]	Denver	R. Liggett	3,699	160	1	1	1	[illegible]
University of Colorado Medical Center		G. Meiklejohn	.....	...	8	30	3	[illegible]
Colorado General Hospital [1-3]	Denver	....	1,466	149	..	..	..	[illegible]
Denver General Hospital [1-3]	Denver	....	2,641	250	..	..	..	[illegible]
Veterans Admin. Hospital [1-3-88]	Denver	T. P. Sears	2,445	143	6	18	3	[illegible]
Colorado State Hospital [89]	Pueblo, Colo.	G. R. Curless	2,141	183	6	11	1	[illegible]
Bridgeport Hospital [1-3]	Bridgeport, Conn.	D. B. Hardenbergh	2,973	112	2	4	2	[illegible]
St. Vincent's Hospital [1-3]	Bridgeport, Conn.	Y. Lynch	3,152	110	1	3	3	[illegible]
Greenwich Hospital [1-3]	Greenwich, Conn.	J. Lockwood	2,375	87	1	2	2	[illegible]
Hartford Hospital [1-3-93]	Hartford, Conn.	M. O. Phelps	4,817	289	11	18	3	[illegible]
Hartford Municipal Hospital and Health Center [1-3]	Hartford, Conn.	W. F. Smith	874	60	1	2	2	[illegible]
St. Francis Hospital [1-3]	Hartford, Conn.	J. J. Moher	4,123	108	2	6	3	[illegible]
New Britain General Hospital [1-3]	New Britain, Conn.	J. C. White	2,357	118	1	3	3	[illegible]
Grace-New Haven Community Hospital [1-3-99]	New Haven, Conn.	P. B. Beeson-T. S. Evans	4,030	307	7	14	3	[illegible]
Hospital of St. Raphael [3]	New Haven, Conn.	T. S. Evans	2,629	71	4	9	3	[illegible]
Veterans Admin. Hospital [1-3]	Newington, Conn.	P. Lipton	1,220	69	6	12	3	[illegible]
Lawrence and Memorial Hospitals [1-3]	New London, Conn.	E. Gipstein	2,933	78	3	3	1	[illegible]
Norwalk Hospital [1-3]	Norwalk, Conn.	D. L. Ellrich	2,557	93	2	2	1	[illegible]
St. Mary's Hospital	Waterbury, Conn.	M. Coshak	3,441	80	2	5	3	[illegible]
Waterbury Hospital [1]	Waterbury, Conn.	J. A. Smith	3,618	111	1	3	3	[illegible]
Veterans Admin. Hospital [1-3-100-102]	West Haven, Conn.	J. W. Hollingsworth	1,573	82	3	6	3	[illegible]
Delaware Hospital [1-3]	Wilmington, Del.	L. B. Flinn	2,516	189	2	5	3	[illegible]
Memorial Hospital [1-3]	Wilmington, Del.	L. P. Lang	1,918	116	1	3	3	[illegible]
Wilmington General Hospital [1-3]	Wilmington, Del.	J. R. Durham, Jr.	1,482	49	1	1	1	[illegible]
District of Columbia General Hospital [1-3]	Washington, D. C.	H. H. Hussey-M. J. Romansky	5,081	352	20	22	3	[illegible]
Georgetown University Hospital [1-3-103]	Washington, D. C.	H. H. Hussey	3,279	155	8	17	3	[illegible]
George Washington University Hospital [1-3]	Washington, D. C.	T. M. Brown	4,810	98	2	8	3	[illegible]
Providence Hospital [1-3]	Washington, D. C.	M McInerney	1,704	65	2	6	3	[illegible]
Veterans Admin. Hospital [1-3-105]	Washington, D. C.	E. D. Freis	1,963	125	5	13	3	[illegible]
Washington Hospital Center		....	.....	...	..	..	..	[illegible]
Central Dispensary and Emergency Hospital [1-3]	Washington, D. C.	T. J. Abernathy	2,116	89	2	5	3	[illegible]
Veterans Admin. Hospital [1]	Coral Gables, Fla.	J. M. Rumball	2,585	253	6	18	3	[illegible]
Duval Medical Center [1-3]	Jacksonville, Fla.	K. B. Hanson	1,802	134	3	6	1	[illegible]
Riverside Hospital	Jacksonville, Fla.	D. White	1,040	9	1	1	1	[illegible]
St. Luke's Hospital [1-3]	Jacksonville, Fla.	J. M. Borland	2,300	32	1	1	1	[illegible]
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	L. E. Geeslin	2,479	53	2	5	3	[illegible]
Jackson Memorial Hospital [1-3]	Miami, Fla.	R. Jones, Jr.	5,173	341	10	20	3	[illegible]
Mount Sinai Hospital of Greater Miami [1-3]	Miami Beach, Fla.	D. A. Nathan	3,739	36	3	7	2	[illegible]
St. Francis Hospital [1-3]	Miami Beach, Fla.	D. G. Stannus	2,655	51	2	2	1	[illegible]
Orange Memorial Hospital [1-3]	Orlando, Fla.	W. D. Steward	2,195	73	1	3	1	[illegible]
Mound Park Hospital [1-3]	St. Petersburg, Fla.	S. Grau	2,505	95	1	1	3	[illegible]
Tampa General Hospital [1-3]	Tampa, Fla.	W. W. Trice, Jr.	5,698	90	1	3	3	[illegible]
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	L. H. Bishop, Jr.	3,774	93	4	7	3	[illegible]
Georgia Baptist Hospital [1-3]	Atlanta, Ga.	M. Johnson	4,063	120	2	5	3	
Grady Memorial Hospital [1-3]	Atlanta, Ga.	J. W. Hurst	2,549	292	9	15		

Numerical and other references will be found on pages 556 through 559.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Anesthetics	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Piedmont Hospital [1]	Atlanta, Ga.	C. Smith	1,178	19	1	1	1	235
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	T. T. Blalock	2,512	29	1	3	2	270
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	J. C. Crutcher	1,955	108	6	12	3	...
Medical College of Georgia Hospitals								
Eugene Talmadge Memorial Hospital	Augusta, Ga.	T. Findley	930	51	6	16	3	250
University Hospital [1]	Augusta, Ga.	J. D. Gray	2,508	90	4	10	3	200
Veterans Admin. Hospital [1-3-115]	Augusta, Ga.	J. G. Bohorfoush	1,162	35	1	2	3	...
Emory University Hospital [1-3]	Emory University, Ga.	R. B. Logue	3,479	82	6	14	3	235
Memorial Hospital of Chatham County [1-3]	Savannah, Ga.	T. A. McGoldrick, Jr.	1,193	65	1	3	1	350
Augustana Hospital [1-3]	Chicago	C. A. Hedberg	4,685	104	2	2	1	150
Columbus Hospital [3]	Chicago	E. Foley	4,271	137	2	4	2	125
Cook County Hospital [1-3]	Chicago	E. F. Foley	15,863	873	12	36	3	100
Grant Hospital [1]	Chicago	A. Vander Kloot	2,633	92	1	3	2	225
Illinois Central Hospital [1-3]	Chicago	W. J. Hand	3,554	115	3	3	2	256
Illinois Masonic Hospital [1-8]	Chicago	L. L. Braun	4,610	161	4	6	2	115
Mercy Hospital [1-3]	Chicago	G. F. O'Brien	2,062	42	4	9	3	200
Michael Reese Hospital	Chicago	R. Levine	3,903	62	5	15	3	100
Mount Sinai Hospital [1-3-12]	Chicago	E. B. Freilich	3,397	127	2	6	3	125
Northwestern University Medical Center [13]								
Chicago Wesley Memorial Hospital [1-3]	Chicago	P. S. Rhoads	5,157	149	3	7	3	125
Passavant Memorial Hospital [1-3]	Chicago	A. R. Colwell	2,570	69	1	4	3	50
Veterans Admin. Research Hospital [1]	Chicago	C. Borden	2,420	57	12	26	3	...
Evanston Hospital [1-3]	Evanston, Ill.	L. F. Jourdonais	3,722	192	2	6	3	225
Norwegian American Hospital [1-3]	Chicago	M. P. Gethner	2,122	40	3	3	1	225
Presbyterian Hospital [1-3]	Chicago	J. A. Campbell	3,998	134	4	12	3	125
Provident Hospital [1-3]	Chicago	A. F. Connor	1,105	40	1	2	1	200
Ravenswood Hospital	Chicago	M. Zeller	2,532	117	2	2	1	100
St. Joseph Hospital [1-3]	Chicago	D. L. Kessler	1,632	47	2	2	1	300
St. Luke's Hospital [1-3]	Chicago	H. Wakefield	3,734	123	4	12	3	125
St. Mary of Nazareth Hospital [1-3]	Chicago	S. A. Motto	3,086	72	2	3	1	150
University of Chicago Clinics [1-3]	Chicago	W. Adams	4,460	143	8	24	3	200
University of Illinois Research and Educational Hospitals [1-3]	Chicago	H. F. Dowling	1,314	108	5	14	3	125
Veterans Admin. West Side Hospital [1-3]	Chicago	H. J. Zimmerman	1,896	130	6	20	3	...
Woodlawn Hospital [1-3]	Chicago	M. Berg	202	4	..	..	1	200
St. Francis Hospital [1]	Evanston, Ill.	R. M. Jones	3,058	178	2	4	1	175
Veterans Admin. Hospital [1-121]	Hines, Ill.	L. A. Baker	3,578	141	17	45	3	...
St. Francis Hospital [1-3]	Peoria, Ill.	R. B. Rutherford	5,202	144	1	3	3	225
Clinic Hospital [1-3]	Bluffton, Ind.	A. A. C. Nickel	4,104	37	1	3	3	300
Indianapolis General Hospital [1]	Indianapolis	P. J. Fouts	1,600	87	5	16	3	205
Indiana University Medical Center [1]	Indianapolis	W. M. M. Kirby	2,066	158	3	9	3	165
Methodist Hospital [1]	Indianapolis	E. P. Tischer	3,962	106	2	6	3	278
St. Vincent's Hospital [1-3]	Indianapolis	J. O. Ritchey	882	23	1	3	3	275
Veterans Admin. Hospital [1-3-126]	Indianapolis	R. H. Behnke	1,982	171	2	4	3	...
St. Elizabeth Hospital [1-3]	Lafayette, Ind.	R. C. Bolin	1,999	48	2	2	1	225
Iowa Methodist Hospital [1-3]	Des Moines, Iowa	A. L. Jenks, Jr.	3,018	106	1	3	3	175
Veterans Admin. Hospital [1-3]	Des Moines, Iowa	J. C. Parsons	2,300	98	4	12	3	...
State University of Iowa Hospitals [1-3]	Iowa City	W. B. Bean	3,322	167	8	23	3	140
Veterans Admin. Hospital [1-3-34-130]	Iowa City	W. M. Kirkendall	1,817	102	4	11	3	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	E. G. Dimond	2,359	105	8	24	3	125
Veterans Admin. Hospital [1]	Kansas City, Mo.	C. E. Andrews	2,331	131	..	..	1	...
Veterans Admin. Hospital [1-3]	Topeka, Kan.	R. Chess	1,606	53	2	2	1	237
St. Francis Hospital [1-3]	Wichita, Kan.	B. Matassarin	3,372	71	2	2	1	275
Wesley Hospital [1-3]	Wichita, Kan.	J. T. Whallon	3,184	33	1	1	1	225
Good Samaritan Hospital [3]	Lexington, Ky.	J. Scott	1,945	54	1	1	1	225
St. Joseph Hospital [1-3]	Lexington, Ky.	J. W. Scott	1,882	26	2	2	1	230
Louisville General Hospital [1-3]	Louisville, Ky.	B. T. Towery	1,711	152	8	18	3	131
St. Joseph Infirmary [1-3]	Louisville, Ky.	R. Denham	4,104	70	3	6	1	210
Veterans Admin. Hospital [1-3-143]	Louisville, Ky.	J. R. Gott, Jr.	1,383	112	3	8	3	...
Charity Hospital of Louisiana								
Independent Unit [1]	New Orleans	J. O. Weilbaecher, Jr.	1,415	100	3	9	3	100
Louisiana State University Unit [1]	New Orleans	W. R. Akenhead	3,226	218	6	18	3	100
Tulane University Unit [1]	New Orleans	G. E. Burch	3,610	237	6	18	3	100
Ochsner Foundation Hospital [1]	New Orleans	W. R. Arrowsmith	2,961	55	4	12	3	225
Southern Baptist Hospital [1-3]	New Orleans	N. W. Voorhies	5,322	69	1	3	1	225
Touro Infirmary [1]	New Orleans	M. Gardberg	3,956	100	2	6	3	125
Veterans Admin. Hospital [1-3]	New Orleans	H. A. Buechner	1,962	161	7	21	3	...
Confederate Memorial Medical Center [1]	Shreveport, La.	M. D. Hargrove	5,923	183	3	9	3	125
Central Maine General Hospital [1]	Lewiston, Maine	M. A. Chapin	1,690	88	1	1	1	225
Maine Medical Center [1]	Portland, Maine	R. S. Hawkes	2,332	79	2	6	3	125
Baltimore City Hospital [1-3]	Baltimore	G. S. Mirick	1,793	189	4	9	3	50
Church Home and Hospital [1-3]	Baltimore	Z. R. Morgan	1,171	63	2	5	3	200
Franklin Square Hospital [1-3]	Baltimore	L. M. Serra	1,486	64	3	5	2	225
Johns Hopkins Hospital [1-3]	Baltimore	A. M. Harvey	2,546	236	6	12	3	150
Lutheran Hospital [1-3]	Baltimore	L. A. M. Krause	1,721	53	4	8	3	220
Maryland General Hospital [1-3]	Baltimore	E. F. Cotter	1,406	77	3	6	3	225
Mercy Hospital [1-3]	Baltimore	H. R. Peters	1,846	93	2	5	3	275
Provident Hospital and Free Dispensary [3]	Baltimore	L. Martin	756	65	2	3	1	200
St. Agnes Hospital [1-3]	Baltimore	L. P. Gundry	2,567	82	2	4	1	250
Sinai Hospital [1-3]	Baltimore	A. I. Mendeloff	1,963	73	4	12	3	110
South Baltimore General Hospital [1-3]	Baltimore	L. P. Gundry	717	41	3	6	1	180
Union Memorial Hospital [1]	Baltimore	J. E. Howard	2,300	112	4	6	3	215
University Hospitals [1-3]	Baltimore	T. E. Woodward	3,157	195	7	17	3	75
Prince George's General Hospital [1-3]	Cheverly, Md.	W. B. Moyers	3,342	68	2	6	1	200
Veterans Admin. Hospital [1-3-150]	Fort Howard, Md.	I. Freeman	1,829	131	3	9	3	...
Veterans Admin. Hospital [1-3-150]	Perry Point, Md.	S. Goldgraben	1,127	21	1	4	3	...
Beth Israel Hospital [1-3]	Boston	H. L. Blumgart	3,159	146	12	14	3	58
Boston City Hospital [1-3]	Boston	....	....	...	24	70	3	112
I and III Medical Service		F. Biguria	3,256	241	..	..	..	...
II and IV Medical Service		W. B. Castle	3,427	310	..	..	..	...
V and VI Medical Service		K. Katz	3,067	181	..	..	..	...
Carney Hospital [3-166]	Boston	N. A. Welch	2,407	61	4	8	3	150
Faulkner Hospital [1-3]	Boston	J R. Graham	1,165	51	2	3	1	125
Lahey Clinic [1-3-167]	Boston	L. M. Hurxthal-F. N. Allan	1,489	41	10	30	3	200
[illegible]	Boston	T. C. Chalmers	954	61	12	20	3	250
tal [1-3]	Boston	W. Bauer	6,863	...	7	20	3	67
pitals [1-3]	Boston	C. S. Keefer	1,644	61	5	21	3	100
l [1-3]	Boston	S. Proger	3,913	59	5	41	3	100
ital [1-3]	Boston	H. F. Root-C. C. Bailey	3,959	125	11	13	2	175
[1-3]	Boston	G. W. Thorn	3,003	195	12	31	3	25
Veterans Admin. Hospital [1-3]	West Roxbury, Mass.	I. A. Warthin	1,330	54	2	9	..	...
St. Elizabeth's Hospital [1-3-176]	Boston	S. McGinn	2,549	100	2	6	3	125
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	M. B. Strauss	5,812	236	14	20	3	...
Cambridge City Hospital [1-3]	[illegible]	[illegible]	1,147	97	2	3	2	160

Numerical and other references will be found on pages 559 through 559.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mount Auburn Hospital [1-2]	Cambridge, Mass.	D. Hurwitz	1,743	93	1	3	2	125
Lawrence F. Quigley Memorial Hospital [1-3]	Chelsea, Mass.	W. R. Ohler	610	41	..	2	1	225
Truesdale Hospital [1-3]	Fall River, Mass.	W. Mason	1,377	52	1	1	1	150
Lynn Hospital [1-2]	Lynn, Mass.	C. A. Palladino	2,101	33	1	1	2	150
Malden Hospital [1-2]	Malden, Mass.	D. Merrill	1,648	44	2	3	1	200
Newton-Wellesley Hospital [1-3]	Newton Lower Falls, Mass.	A. W. Locke	2,212	77	3	3	1	200
Quincy City Hospital [1-3]	Quincy, Mass.	J. C. Brudno	1,258	60	1	1	1	175
Salem Hospital [1]	Salem, Mass.	S. N. Gardner	1,582	47	1	1	1	300
Pondville Hospital [1]	Walpole, Mass.	D. Merrill	....	...	..	1	1	400
Memorial Hospital [1-2]	Worcester, Mass.	R. W. Robinson	2,668	81	2	4	3	300
St. Vincent Hospital [1-2]	Worcester, Mass.	J. T. Brosnan	4,875	114	5	9	3	...
Worcester City Hospital [1-2]	Worcester, Mass.	J. Lundy	2,093	122	2	4	3	215
St. Joseph Mercy Hospital	Ann Arbor, Mich.	M. Marshall	3,506	80	4	7	3	275
University Hospital [1-2-189]	Ann Arbor, Mich.	P. Barker	4,595	183	18	54	3	150
Veterans Admin. Hospital [1-2-190]	Dearborn, Mich.	M. R. Weed	3,402	189	4	10	3	...
Alexander Blain Hospital [1-3]	Detroit	J. W. Kingsley, Jr.	1,783	9	1	3	2	325
Detroit Memorial Hospital [1-3]	Detroit	J. L. Cahalan	3,645	110	2	4	3	275
Evangelical Deaconess Hospital [1-3]	Detroit	L. D. Stern	1,843	73	1	3	1	307
Grace Hospital [1-3]	Detroit	D. W. Myers	5,719	152	3	9	3	275
Harper Hospital [1-2]	Detroit	R. J. Schneck	2,860	115	4	12	3	225
Henry Ford Hospital [1-2]	Detroit	J. G. Mateer	8,892	280	20	54	3	225
Jennings Memorial Hospital [1-2]	Detroit	R. A. Johnson	281	4	1	2	1	350
Mount Carmel Mercy Hospital [1-3]	Detroit	E. J. Tallant	5,210	203	4	8	3	275
Providence Hospital [1]	Detroit	L. J. Bailey	3,413	140	1	3	3	275
Receiving Hospital [1-3]	Detroit	G. B. Myers	2,263	387	10	22	3	283
St. John Hospital [1-2]	Detroit	J. Murphy	1,442	35	1	2	2	275
St. Joseph Mercy Hospital [1]	Detroit	E. D. Maire	1,648	63	1	2	3	310
Sinai Hospital [1-2]	Detroit	J. E. Berk	2,314	82	3	9	3	275
Woman's Hospital [1-2]	Detroit	B. I. Johnstone	1,687	45	1	3	1	415
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	S. D. Jacobson	3,527	230	5	17	3	316
Hurley Hospital [1-3]	Flint, Mich.	G. E. Drewyer	5,354	167	2	6	3	325
McLaren General Hospital [1]	Flint, Mich.	H. V. Sparks	2,489	94	1	3	3	325
Blodgett Memorial Hospital [1-2]	Grand Rapids, Mich.	C. B. Beeman	2,628	121	1	3	3	275
Butterworth Hospital [1-3]	Grand Rapids, Mich.	W. Cayce	2,474	148	2	6	3	300
St. Mary's Hospital [1-3]	Grand Rapids, Mich.	J. F. Sanders	3,303	94	1	1	1	250
Bon Secours Hospital	Grosse Pointe, Mich.	R. Griffin	1,477	50	1	2	2	415
Highland Park General Hospital [1]	Highland Park, Mich.	L. Jaffe	876	9	1	3	3	306
Bronson Methodist Hospital [1]	Kalamazoo, Mich.	H. E. DePree	2,203	83	1	3	3	250
Edward W. Sparrow Hospital	Lansing, Mich.	W. D. Hayford	7,231	165	1	1	1	425
St. Lawrence Hospital [1-2]	Lansing, Mich.	J. Cordes	12,415	219	1	3	3	300
Pontiac General Hospital [1-2]	Pontiac, Mich.	C. R. Gatley	3,150	84	1	3	2	325
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	S. Miller	3,611	70	1	3	3	325
William Beaumont Hospital [1-3]	Royal Oak, Mich.	E. E. Hammonds	2,264	72	2	2	1	...
Saginaw General Hospital [1-3]	Saginaw, Mich.	B. M. Bullington	1,903	69	1	3	3	345
Asbury Methodist Hospital [1-3]	Minneapolis	C. A. McKinlay	2,493	64	1	1	1	250
Minneapolis General Hospital [1-3]	Minneapolis	T. Lowry	1,342	128	4	10	3	200
Mount Sinai Hospital [1-3]	Minneapolis	W. Jacobson	2,337	64	1	1	3	200
Northwestern Hospital [1-3]	Minneapolis	M. C. Hanson	2,164	79	2	2	1	200
University of Minnesota Affiliated Hospitals			....	...	..	..	3	...
University Hospital [1-3]	Minneapolis	C. J. Watson	2,113	146	5	14	..	185
Veterans Admin. Hospital [1-2-210]	Minneapolis	E. B. Flink	2,459	178	16	36	..	...
Ancker Hospital [1-3]	St. Paul	J. Borg	1,533	132	2	6	..	185
Mayo Foundation [1-3]	Rochester, Minn.	R. D. Pruitt	23,185	212	60	202	3	175
Charles T. Miller Hospital [1-3]	St. Paul	B. Sommers	3,370	73	1	3	3	225
University Hospital [1-214]	Jackson, Miss.	J. R. Snavely	1,232	79	4	8	3	250
St. Louis County Hospital [1-3]	Clayton, Mo.	R. O. Muether	1,225	111	2	6	3	225
University of Missouri Medical Center [1-3]	Columbia, Mo.	W. A. Sodeman	419	20	6	13	3	...
Kansas City General Hospital No. 1	Kansas City, Mo.	T. R. Jones	1,245	116	4	12	3	200
Menorah Medical Center [1-3]	Kansas City, Mo.	J. W. Wolf	4,048	79	3	7	3	200
St. Joseph Hospital	Kansas City, Mo.	M. P. Hunter-R. P. Wright	2,524	114	1	3	1	250
St. Luke's Hospital [1-3]	Kansas City, Mo.	M. G. Berry	3,454	144	2	4	3	225
Barnes Hospital [1-3]	St. Louis	C. V. Moore	6,029	290	23	25	3	50
De Paul Hospital [1-3]	St. Louis	D. B. Flavan	5,104	103	2	3	3	200
Homer G. Phillips Hospital [1-3]	St. Louis	J. R. Smith	2,910	172	9	20	3	201
Jewish Hospital [1-3]	St. Louis	S. Sherry	3,475	138	6	11	3	100
Missouri Baptist Hospital [1-3]	St. Louis	W. M. Lonergan	2,744	75	2	4	3	175
Missouri Pacific Hospital [3]	St. Louis	L. B. Harrison	4,393	90	6	9	3	200
St. John's Hospital [1-3]	St. Louis	A. McMahon	2,226	90	3	6	3	200
St. Louis City Hospital [1-3]	St. Louis	B. Bercu-R. Kinsella, Jr.	3,534	320	12	24	3	92
St. Luke's Hospital [1-3]	St. Louis	P. O. Hagemann	1,892	80	2	4	3	250
St. Mary's Group of Hospitals [1-3]	St. Louis	G. O. Broun	5,374	182	6	15	3	100
Veterans Admin. Hospital [1-3]	St. Louis		....	...	..	..	3	...
St. Louis University Service		R. E. Mack	816	62	3	6	..	...
Washington University Service		R. V. Bing	826	80	3	6	..	...
Montana Deaconess Hospital [1-3]	Great Falls, Mont.		1,561	91	1	2	1	275
Veterans Admin. Hospital [1-3]	Lincoln, Neb.	J. R. Gordon	1,009	40	1	3	3	...
Creighton Memorial-St. Joseph's Hospital	Omaha	J. Walsh	5,426	136	2	6	3	210
University of Nebraska Hospital [1-3]	Omaha	R. L. Grissom	504	35	2	8	3	175
Veterans Admin. Hospital [1-3]	Omaha	J. M. Holthaus	1,666	99	4	12	3	...
Dartmouth Medical School Affiliated Hospitals			4,265	119	6	18	3	215
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	J. W. Wright	....	...	..	..	..	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	J. L. Grant	....	...	..	..	..	...
Atlantic City Hospital [1-3]	Atlantic City, N. J.	W. B. Stewart	2,360	137	1	3	2	200
Cooper Hospital [1-2]	Camden, N. J.	R. L. Sharp	2,494	123	2	3	3	200
Veterans Admin. Hospital [1-3]	East Orange, N. J.	H. A. Weiner	1,460	112	7	17	3	...
Jersey City Medical Center [1-3]	Jersey City, N. J.	T. J. White	7,282	150	10	27	3	100
Mountainside Hospital [1-3]	Montclair, N. J.	C. F. Turner	3,035	...	1	3	3	250
Morristown Memorial Hospital [1-3]	Morristown, N. J.	F. C. Bowers	5,521	110	1	2	2	250
Burlington County Hospital [1-3]	Mt. Holly, N. J.	L. E. Viteri	1,405	77	..	3	2	100
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	J. Levin	3,714	146	6	11	3	182
Newark Beth Israel Hospital [1-3]	Newark, N. J.	J. Kaufman	2,488	80	1	3	3	150
St. Michael's Hospital [1-3-227]	Newark, N. J.	N. A. Antonius	2,475	94	3	8	3	165
St. Peter's General Hospital [1-3]	New Brunswick, N. J.	J. Sandella	1,675	68	1	1	1	175
Orange Memorial Hospital [1-3]	Orange, N. J.	R. R. Chamberlain	2,711	79	1	2	1	150
Bergen Pines County Hospital [1-3]	Paramus, N. J.	S. F. Alexander	1,650	168	6	6	1	200
Mercer Hospital [1-3]	Trenton, N. J.	J. F. Pessel	2,314	144	1	1	1	150
St. Francis Hospital [1-3]	Trenton, N. J.	P. H. Corrigan	2,094	115	1	2	2	210
Bataan Memorial Methodist Hospital [1-3]	Albuquerque, N. Mex.	C. H. Dillingham, Jr.	2,164	47	4	6	3	225
Bernalillo County-Indian Hospital	Albuquerque, N. Mex.	J. D. Abrums	1,091	59	1	3	3	250
Veterans Admin. Hospital [1-3-228]	Albuquerque, N. Mex.	W. S. Taylor	1,749	84	5	10	3	...
Albany Hospital [1-3]	Albany, N. Y.	R. T. Beebe	3,396	208	8	19	3	150
Veterans Admin. Hospital [1-3]	Albany, N. Y.	J. H. Cullen	3,179	179	4	10	3	...

Numerical and other references will be found on pages 556 through 559.

8. INTERNAL MEDICINE—(Continued)

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3]	Bath, N. Y.	H. W. Baum	2,203	80	3	3	2	...
Binghamton City Hospital [1-3]	Binghamton, N. Y.	M. H. Paushter	4,263	105	2	4	3	150
Beth-El Hospital [1-3]	Brooklyn, N. Y.	I. Snapper	1,742	39	3	6	3	125
Brooklyn Hospital [1-3-45]	Brooklyn, N. Y.	G. E. Anderson	1,938	92	4	8	3	175
Coney Island Hospital	Brooklyn, N. Y.	M. Mensch	1,475	105	2	7	2	105
Cumberland Hospital [1-3]	Brooklyn, N. Y.	S. P. Bailey	1,651	79	2	6	3	104
Jewish Chronic Disease Hospital [1-3]	Brooklyn, N. Y.	M. G. Goldner	1,558	87	10	12	3	175
Jewish Hospital [1-3]	Brooklyn, N. Y.	J. D. Goldstein	2,346	65	5	10	3	100
Kings County Hospital								
Division I [1-3]	Brooklyn, N. Y.	A. Fankhauser	6,734	257	6	19	3	104
Division II [1-3]	Brooklyn, N. Y.	P. H. Long	6,730	479	6	20	3	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	J. H. Crawford	819	20	2	5	3	156
Lutheran Medical Center [1-3]	Brooklyn, N. Y.	W. F. Rexer	1,257	39	1	3	3	135
Maimonides Hospital [1-3]	Brooklyn, N. Y.	M. Michael, Jr.	3,189	110	8	13	3	75
Methodist Hospital [1-3]	Brooklyn, N. Y.	H. D. Fearon	1,733	58	2	5	3	175
St. John's Episcopal Hospital [1-3]	Brooklyn, N. Y.	E. R. Marzullo	1,633	38	1	2	3	175
St. Mary's Hospital [1-3]	Brooklyn, N. Y.	V. Annunziata	743	24	1	2	1	200
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	P. W. Spear	2,651	156	13	35	3	...
Allied Hospitals of The Sisters of Charity [1-3]	Buffalo	H. F. Brown	5,466	126	2	6	3	235
Emergency Hospital			....	...	..	..	..	...
Sisters of Charity Hospital			....	...	..	..	..	...
Buffalo General Hospital [1-3-210]	Buffalo	J. H. Talbott	5,033	203	7	9	3	175
Deaconess Hospital [1-3]	Buffalo	M. S. Howland, Jr.	2,375	84	3	3	1	300
Edward J. Meyer Memorial Hospital [1-3]	Buffalo	D. K. Miller	4,309	149	6	20	3	248
Millard Fillmore Hospital [1-3]	Buffalo	J. F. Painton	2,449	67	3	8	3	285
Roswell Park Memorial Institute [1-3]	Buffalo	J. E. Sokal	384	116	6	6	1	300
Veterans Admin. Hospital [1-3]	Buffalo	G. W. Bissell	2,378	161	4	12	3	...
Clifton Springs Sanitarium and Clinic [1-3]	Clifton Springs, N. Y.	B. A. Watson	2,302	40	1	3	3	150
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	E. D. Thomas	1,120	35	3	5	3	150
Elmhurst General Hospital [1-3-17]	Elmhurst, N. Y.	H. E. Marks	3,459	100	4	12	3	104
Flushing Hospital and Dispensary [1-3]	Flushing, N. Y.	C. Cramer	1,781	69	1	3	3	175
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	A. W. Freireich	2,113	190	4	12	3	225
Cornell University Infirmary [1-3]	Ithaca, N. Y.	N. S. Moore	1,347	...	4	4	1	208
Tompkins County Memorial Hospital	Ithaca, N. Y.		....	...	..	..	..	...
Jamaica Hospital [1-3]	Jamaica, N. Y.	D. Porte	....	...	1	1	1	200
Mary Immaculate Hospital [3]	Jamaica, N. Y.	F. Mazzola	1,531	37	2	2	1	160
Queens Hospital Center [1-3]	Jamaica, N. Y.	A. A. Fischl	4,622	342	7	10	3	105
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	N. Occhino	4,557	78	3	6	2	225
North Shore Hospital [1-3]	Manhasset, N. Y.	W. J. Messinger	1,124	59	2	4	2	200
Mount Vernon Hospital [1-3]	Mount Vernon, N. Y.	H. Belsky	1,748	74	1	2	2	200
Long Island Jewish Hospital [1-3]	New Hyde Park, N. Y.	E. Meilman	1,863	80	2	4	3	75
New Rochelle Hospital [1-3]	New Rochelle, N. Y.	W. C. Meredith	3,155	81	1	3	3	225
Bellevue Hospital Center								
Div. I—Columbia University [1-3]	New York City	D. W. Richards	1,390	76	7	13	3	105
Div. II—Cornell University [1-3-16-259]	New York City	T. P. Almy	1,364	71	6	13	3	105
Div. III—New York University College of Medicine	New York City	W. S. Tillett	2,150	89	8	16	3	115
Div. IV—New York University Post-Graduate Medical School [265]	New York City	C. F. Wilkinson, Jr.	1,573	58	10	30	3	105
Beth Israel Hospital [1-3]	New York City	A. M. Fishberg	2,198	66	3	9	3	140
Bronx Hospital [1-3]	New York City	E. E. Fischel	2,135	50	3	9	3	60
Bronx Municipal Hospital Center [1-3]	New York City	I. M. London	2,053	188	12	24	3	105
Columbus Hospital [3]	New York City	A. Siragusa	1,263	26	1	3	3	125
Fordham Hospital [1-3]	New York City	M. M. Levites	2,960	138	6	8	2	104
42nd Street Beth David Hospital	New York City	H. A. Solomon	1,191	35	1	1	1	125
Francis Delafield Hospital [1-3]	New York City	R. F. Loeb	480	75	4	8	3	105
French Hospital [1-3]	New York City	H. J. McNeile	1,331	22	1	4	3	50
Goldwater Memorial Hospital								
Columbia University and Research Division [1-3]	New York City	Y. Kneeland, Jr.-D. Seegal	191	12	4	4	1	157
New York University Division III [1-3]	New York City	M. Rosenbluth	655	41	4	11	1	104
New York University Research Division	New York City	J. M. Steele	202	10	2	4	1	157
Hospital for Joint Diseases [1-3]	New York City	M. L. Kramer	689	26	2	3	2	80
Knickerbocker Hospital [1-3]	New York City	M. S. Bruno	2,850	74	2	4	3	125
Lebanon Hospital [1-3]	New York City	H. L. Frosch-S. Weiskopf	2,261	62	1	1	1	100
Lenox Hill Hospital [1-3]	New York City	E. A. Lawrence-C. E. de la Chapelle	2,340	65	4	7	3	180
Lincoln Hospital [1-3]	New York City	C. R. Messeloff	2,802	53	4	11	3	71
Memorial Center for Cancer and Allied Diseases [1-3-15]	New York City	R. W. Rawson	1,552	201	12	24	3	150
James Ewing Hospital			....	...	..	..	..	...
Memorial Hospital			....	...	..	..	..	...
Misericordia Hospital	New York City	L. V. Rooney	898	31	1	2	1	100
Montefiore Hospital [1-3]	New York City	L. Leiter	3,916	168	18	31	3	187
Morrisania City Hospital [1-3]	New York City	S. Biloon	3,443	188	7	11	2	104
Mount Sinai Hospital [1-3]	New York City	A. B. Gutman	5,591	180	14	32	3	75
New York Hospital [1-3]	New York City	D. P. Barr	3,129	202	14	26	3	164
New York Infirmary [1-3]	New York City	A. P. McCombs	657	14	1	2	1	175
New York Medical College—Metropolitan Medical Center		L. J. Boyd	....	...	..	..	..	...
Bird S. Coler Memorial Hospital and Home [1-3]	New York City		2,738	106	25	51	2	157
Flower and Fifth Avenue Hospitals	New York City		1,461	23	4	5	3	...
Metropolitan Hospital [1-3]	New York City		4,142	149	4	12	3	104
New York Polyclinic Medical School and Hospital [1-3]	New York City	J. P. Croce	1,280	28	1	3	3	125
New York University—Bellevue Medical Center								
University Hospital	New York City	C. F. Wilkinson, Jr.	2,028	60	..	1	1	135
Presbyterian Hospital [1]	New York City	R. F. Loeb	7,410	148	12	21	3	250
Roosevelt Hospital [1-3]	New York City	A. J. Antenucci-J. M. Freston	2,651	96	6	12	3	133
St. Barnabas Hospital for Chronic Diseases [1-3]	New York City	A. J. Patek, Jr.	853	32	2	4	2	75
St. Clare's Hospital [1-3]	New York City	J. P. Croce	2,506	41	1	3	3	200
St. Francis Hospital [1-3]	New York City	E. P. Flood	1,844	46	2	4	3	125
St. Luke's Hospital	New York City	G. J. Coffin	3,672	137	6	16	3	160
St. Vincent's Hospital [1-3]	New York City	O. La Rotonda	4,129	194	6	13	3	125
Sydenham Hospital [1-3]	New York City	E. Appelbaum	902	16	2	3	1	105
Veterans Admin. Hospital [1-3-279]	New York City (Bronx)	J. Wolf	5,395	250	14	42	3	...
Veterans Admin. Hospital [1-3]	New York City (Manhattan)	J. J. Smith	2,786	133	16	26	3	...
United Hospital [1-3]	Port Chester, N. Y.	N. Schwartz	1,843	18	2	2	1	200
Genesee Hospital [1-3]	Rochester, N. Y.	H. Segal	1,892	150	2	5	3	240
Highland Hospital	Rochester, N. Y.	J. W. Holler	1,424	92	2	5	3	225
Rochester General Hospital [1-3]	Rochester, N. Y.	L. Horn	2,295	155	3	9	3	125
St. Mary's Hospital [1-3]	Rochester, N. Y.	L. F. La Palm	2,887	186	1	3	3	200
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	W. S. McCann	4,550	343	12	26	3	117
Ellis Hospital	Schenectady, N. Y.	H. E. Reynolds	4,847	109	3	6	3	150
Staten Island Hospital [1-3]	Staten Island, N. Y.	C. N. Accettola	2,062	49	1	1	1	200
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	R. H. Lyons	7,977	341	12	40	3	223
Veterans Admin. Hospital	Syracuse, N. Y.	J. Duggan	1,585	95	..	..	..	...

Numerical and other references will be found on pages 556 through 559.

8. INTERNAL MEDICINE—(Continued)

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Monthly)
Grasslands Hospital [1-3]	Valhalla, N. Y.	W. P. Reed	1,008	98	1	5	3	[illegible]
White Plains Hospital [1-3]	White Plains, N. Y.	E. W. Weber	1,403	43	1	3	3	[illegible]
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	C. H. Burnett	1,364	54	7	15	3	[illegible]
Charlotte Memorial Hospital [1]	Charlotte, N. C.	J. M. Alexander	2,468	80	1	3	3	[illegible]
Duke University Affiliated Hospitals		...	....	...	..	..	3	
Duke Hospital [1-3]	Durham, N. C.	E. A. Stead, Jr.	3,104	118	14	36	..	[illegible]
Veterans Admin. Hospital [1-3]	Durham, N. C.	W. P. Deiss	2,103	75	..	1	..	[illegible]
Watts Hospital [1-3]	Durham, N. C.	I. H. Manning, Jr.	3,518	45	2	5	3	[illegible]
Rex Hospital [1]	Raleigh, N. C.	T. L. Umphlet	3,478	60	1	1	1	[illegible]
City Memorial Hospital [1-3]	Winston-Salem, N. C.	C. H. Reid	3,822	100	1	3	3	[illegible]
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	E. H. Yount, Jr.	4,505	67	5	11	3	[illegible]
Bismarck Hospital [3]	Bismarck, N. Dak.	C. H. Peters	1,575	41	2	2	1	[illegible]
St. Luke's Hospital [3]	Fargo, N. Dak.	A. C. Fortney	1,822	66	1	1	1	[illegible]
Akron City Hospital [1-3]	Akron, Ohio	A. P. Ormond	4,418	178	2	6	3	[illegible]
Akron General Hospital [1]	Akron, Ohio	R. F. Jukes	2,913	103	3	9	3	[illegible]
Aultman Hospital [1-3]	Canton, Ohio	R. E. Tschantz	5,216	134	3	6	3	[illegible]
Mercy Hospital [1-3]	Canton, Ohio	L. C. Underwood	2,004	81	2	6	3	[illegible]
Bethesda Hospital [1-3]	Cincinnati	J. Ganim	1,518	46	1	1	1	[illegible]
Christ Hospital [1]	Cincinnati	W. D. Ramey	1,362	87	1	3	1	[illegible]
University of Cincinnati College of Medicine Hospital Group								
Cincinnati General Hospital [1-3]	Cincinnati	R. W. Vilter	2,281	275	12	34	3	[illegible]
Good Samaritan Hospital [1-3]	Cincinnati	L. B. Owens	2,947	86	2	6	3	[illegible]
Jewish Hospital [1-3]	Cincinnati	H. Schiro	2,779	145	6	11	3	[illegible]
St. Mary's Hospital [1-3]	Cincinnati	J. D. Marioni	708	27	2	4	3	[illegible]
City Hospital [1-3]	Cleveland	C. R. Rammelkamp, Jr.	1,619	155	10	20	3	[illegible]
Cleveland Clinic Hospital [1-3]	Cleveland	A. C. Ernstene	1,071	26	19	46	3	[illegible]
Fairview Park Hospital [1-3]	Cleveland	H. E. Christman	2,513	185	2	4	2	[illegible]
Highland View-Cuyahoga County Hospital	Cleveland	D. R. Weir	930	50	5	9	1	[illegible]
Huron Road Hospital [1-3]	Cleveland	E. A. Marshall	2,466	73	2	4	3	[illegible]
Lutheran Hospital [1-3]	Cleveland	M. August	1,451	71	1	3	1	[illegible]
Mount Sinai Hospital [1-3]	Cleveland	M. L. Siegel	2,965	130	5	10	3	[illegible]
St. Alexis Hospital [1-3]	Cleveland	R. R. Bartunek	3,589	83	2	4	2	[illegible]
St. John's Hospital	Cleveland	W. M. Novince	831	18	2	4	2	[illegible]
St. Luke's Hospital [1-3]	Cleveland	A. D. Nichol	3,824	174	3	8	3	[illegible]
St. Vincent Charity Hospital [1-3]	Cleveland	F. R. Hanrahan	3,746	114	4	8	3	[illegible]
University Hospitals [1-3]	Cleveland	R. H. Ebert	3,993	262	12	21	3	[illegible]
Veterans Admin. Hospital [1-3-29-307-308]	Cleveland	N. P. Shumway	3,371	166	7	14	3	...
Mount Carmel Hospital [1]	Columbus, Ohio	P. T. Knies	1,492	65	2	5	3	[illegible]
Ohio State University Hospitals								
University Hospital [1-3-316-317]	Columbus, Ohio	B. K. Wiseman	3,764	204	6	15	3	[illegible]
White Cross Hospital [1-3]	Columbus, Ohio	R. H. Jacques	2,273	52	2	4	3	[illegible]
Good Samaritan Hospital [1-3]	Dayton, Ohio	M. Block	6,671	92	2	2	1	[illegible]
Veterans Admin. Hospital [1-3]	Dayton, Ohio	S. Simerman	2,777	169	10	24	3	...
Marymount Hospital [1-3]	Garfield Heights, Ohio	A. S. Broglio	3,962	60	2	2	1	[illegible]
Mercy Hospital [1-3]	Hamilton, Ohio	C. A. Schuck	2,985	92	6	6	1	[illegible]
Lakewood Hospital [1-3]	Lakewood, Ohio	J. T. Ledman	2,200	90	3	7	3	[illegible]
Lima Memorial Hospital [1-3]	Lima, Ohio	L. N. Irvin	3,597	72	1	3	1	[illegible]
St. Rita's Hospital [1-3]	Lima, Ohio	F. G. Maurer	2,792	45	1	3	3	[illegible]
Maumee Valley Hospital [1-3]	Toledo, Ohio	M. E. Green	1,400	79	2	5	3	[illegible]
Mercy Hospital [1-3]	Toledo, Ohio	G. W. Bascom	410	21	1	1	1	[illegible]
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. A. Schnitker	4,461	106	1	3	3	[illegible]
Toledo Hospital [1-3]	Toledo, Ohio	C. S. Mundy	3,428	109	1	3	3	[illegible]
Trumbull Memorial Hospital [1]	Warren, Ohio	J. R. McKay	4,990	78	1	3	3	[illegible]
St. Elizabeth Hospital [1-3]	Youngstown, Ohio	P. J. Manar	192	...	2	3	2	[illegible]
Youngstown Hospital [1-3]	Youngstown, Ohio	J. Noll	2,181	102	2	6	3	[illegible]
St. Anthony Hospital	Oklahoma City	P. M. McNeill	2,068	49	1	2	2	[illegible]
University of Oklahoma Medical Center								
University Hospitals [1-3-319]	Oklahoma City	S. G. Wolf, Jr.	1,357	79	6	18	3	...
Veterans Admin. Hospital [1-3]	Oklahoma City	J. F. Hammarsten	2,432	110	6	16	3	...
Wesley Hospital [1]	Oklahoma City	W. W. Rucks, Jr.	1,439	26	1	1	1	[illegible]
St. John's Hospital [1-3]	Tulsa, Okla.	P. T. Strong	3,062	75	2	4	2	[illegible]
Emanuel Hospital [1-3]	Portland, Ore.	G. R. McCutchan	3,675	152	1	3	3	[illegible]
Good Samaritan Hospital [1-3]	Portland, Ore.	O. Page	5,969	...	2	6	1	[illegible]
Providence Hospital [1-3]	Portland, Ore.	J. J. Murphy	3,633	166	1	3	3	[illegible]
St. Vincent's Hospital [1-3]	Portland, Ore.	E. E. Rosenbaum	4,592	133	2	6	3	[illegible]
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	H. P. Lewis	2,292	240	3	9	3	[illegible]
Veterans Admin. Hospital [1-3]	Portland, Ore.	L. W. Ritzmann	2,666	130	7	16	3	...
Abington Memorial Hospital [1-3]	Abington, Pa.	J. T. Beardwood, Jr.	1,695	84	1	3	3	[illegible]
Allentown Hospital [1-3]	Allentown, Pa.	C. H. Keichner	2,545	123	1	3	3	[illegible]
Sacred Heart Hospital [1-3]	Allentown, Pa.	A. W. Dubbs	2,461	64	2	3	2	[illegible]
St. Luke's Hospital [1-3]	Bethlehem, Pa.	R. K. Shields	2,671	131	2	2	3	[illegible]
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	W. W. Dyer	3,146	130	1	5	3	[illegible]
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	W. J. Stainsby	2,494	78	3	8	3	[illegible]
Easton Hospital [1-3]	Easton, Pa.	J. Kincov	2,043	109	2	3	2	[illegible]
Hamot Hospital [1-3]	Erie, Pa.	J. B. Tredway	3,542	73	1	1	2	[illegible]
Harrisburg Hospital	Harrisburg, Pa.	J. A. Daugherty	5,229	160	1	3	3	[illegible]
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	A. W. Cowley	2,914	148	2	4	3	[illegible]
Albert Einstein Medical Center								
Northern Division [1-3]	Philadelphia	B. A. Gouley	2,927	122	6	14	3	[illegible]
Southern Division [1-3]	Philadelphia	T. Mendell	2,814	108	1	4	3	[illegible]
Chestnut Hill Hospital [1]	Philadelphia	R. M. Truitt, Jr.	1,290	52	2	2	1	[illegible]
Episcopal Hospital [1-3]	Philadelphia	S. R. Vogel	2,406	123	2	6	3	[illegible]
Frankford Hospital [1-3]	Philadelphia	G. E. Mark, Jr.	1,198	78	1	1	1	[illegible]
Germantown Dispensary and Hospital [1-3]	Philadelphia	R. W. Mays	2,350	124	1	3	3	[illegible]
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. L. Bockus	1,344	59	3	6	3	[illegible]
Hahnemann Medical College and Hospital [1-3]	Philadelphia	J. B. Donaldson	779	36	4	12	3	[illegible]
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F. C. Wood	5,171	189	14	45	3	...
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	W. G. Leaman	1,428	45	1	5	3	[illegible]
Jefferson Medical College Hospital [1-3-32]	Philadelphia	J. E. Deitrick	4,277	117	6	20	3	[illegible]
Lankenau Hospital [1-3]	Philadelphia	F. L. Hartmann-E. L. Bortz	2,604	81	2	4	2	[illegible]
Methodist Episcopal Hospital [1-3]	Philadelphia	H. F. Robertson	1,658	56	2	2	1	[illegible]
Pennsylvania Hospital [1-3]	Philadelphia	G. G. Duncan	2,908	168	11	11	3	[illegible]
Philadelphia General Hospital [3]	Philadelphia	C. M. Thompson	5,743	593	6	18	3	[illegible]
Presbyterian Hospital [1-3]	Philadelphia	G. P. Rouse	2,179	101	1	3	3	[illegible]
Temple University Hospital [1-3]	Philadelphia	T. M. Durant	3,283	115	4	12	3	...
Veterans Admin. Hospital [1-3]	Philadelphia	H. P. Close	4,079	253	5	17	3	...
Allegheny General Hospital [1]	Pittsburgh	V. B. Callomon	2,290	71	1	8	3	[illegible]
Health Center Hospitals of the University of Pittsburgh School of Medicine	Pittsburgh							
Elizabeth Steel Magee Hospital [1-3]		L. Gregg	1,766	74	2	4	3	...
Presbyterian Hospital		J. D. Myers	2,555	108	6	14	3	[illegible]

Numerical and other references will be found on pages 556 through 559.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Yr. Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Mercy Hospital	Pittsburgh	J. M. Johnston	1,278	13	3	9	3	235
Montefiore Hospital $^{1-3}$	Pittsburgh	....	2,523	100	3	9	1	225
Pittsburgh Hospital $^{1-3}$	Pittsburgh	A. V. Morgan	1,459	45	1	1	1	200
St. Francis General Hospital and Rehabilitation Institute $^{1-3}$	Pittsburgh	A. P. D'Zmura	2,496	105	1	3	3	200
Veterans Admin. Hospital $^{1-3}$	Pittsburgh	A. S. Glushien	2,224	174	8	18	3	...
Western Pennsylvania Hospital $^{1-3}$	Pittsburgh	R. L. Forsyth	3,183	133	2	6	3	225
Reading Hospital $^{1-3}$	Reading, Pa.	J. R. Spannuth	2,380	181	1	3	3	225
Robert Packer Hospital $^{1-3}$	Sayre, Pa.	S. D. Conklin	3,625	81	3	9	3	200
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.	J. F. Giering	2,883	65	1	1	1	225
Rhode Island Affiliated Hospitals		....	....	...	..	..	3	...
Newport Hospital	Newport, R. I.	H. W. Brownell	6,504	50	1	1	..	200
Memorial Hospital	Pawtucket, R. I.	R. E. Stevens	9,379	128	..	1	..	200
Miriam Hospital	Providence, R. I.	E. A. Sharp	6,249	55	..	1	..	200
Rhode Island Hospital $^{1-3}$	Providence, R. I.	M. N. Fulton	3,687	230	5	9	3	100
Veterans Admin. Hospital $^{1-3}$	Providence, R. I.	H. A. Lawson	1,931	81	2	4	2	...
Medical College of South Carolina Teaching Hospitals ^{1}	Charleston, S. C.	V. Moseley	2,326	85	7	12	3	137
Columbia Hospital of Richland County $^{1-3}$	Columbia, S. C.	W. C. McLain	4,521	79	2	2	1	175
Veterans Admin. Hospital	Columbia, S. C.	S. L. Zimmerman	2,856	96	2	6	3	...
Baroness Erlanger Hospital $^{1-3}$	Chattanooga, Tenn.	A. S. Easley	4,710	142	4	7	3	225
Memorial Hospital $^{1-3}$	Chattanooga, Tenn.	W. B. MacGuire	2,242	39	2	2	1	250
St. Mary's Memorial Hospital $^{1-3}$	Knoxville, Tenn.	B. M. Overholt	4,074	72	2	4	2	250
City of Memphis Hospitals $^{1-3}$	Memphis, Tenn.	I. F. Tullis	2,772	310	6	17	3	125
St. Joseph Hospital $^{1-3}$	Memphis, Tenn.	S. B. Blackwell	3,539	72	1	3	3	250
Veterans Admin. Hospital $^{1-3-344}$	Memphis, Tenn	F. S. Dietrich	3,540	137	5	14	3	...
Baptist Hospital $^{1-3}$	Nashville, Tenn.	J. N. Thomasson	2,414	3	3	4	1	175
George W. Hubbard Hospital $^{1-3}$	Nashville, Tenn.	F. T. Billings, Jr.	1,171	63	2	5	3	125
Nashville General Hospital $^{1-3}$	Nashville, Tenn.	W. J. Card	1,012	53	2	4	1	200
St. Thomas Hospital $^{1-3}$	Nashville, Tenn.	J. J. Callaway	2,091	47	1	3	3	300
Vanderbilt University Hospital $^{1-3}$	Nashville, Tenn	H. J. Morgan	3,447	94	..	13	3	50
Veterans Admin. Hospital ^{1}	Nashville, Tenn.	R. France	2,212	60	3	5	3	...
Oak Ridge Institute of Nuclear Studies $^{1-3-21}$	Oak Ridge, Tenn.	G. A. Andrews	302	26	..	2	1	167
Baylor University Hospital $^{1-3}$	Dallas, Texas	P Thomas	5,824	158	2	6	3	160
Methodist Hospital $^{1-3}$	Dallas, Texas	T. S. Barnes	604	9	1	4	3	200
Parkland Memorial Hospital $^{1-3}$	Dallas, Texas	D. Seldin	1,660	144	6	18	3	125
St. Paul's Hospital $^{1-3}$	Dallas, Texas	P. Q. Needham	3,557	105	2	6	3	125
Veterans Admin. Hospital $^{1-3-347}$	Dallas, Texas	B. Friedman	2,224	121	7	12	3	...
Harris Hospital $^{1-3}$	Fort Worth, Texas	J. M. Church	5,447	94	1	2	2	300
University of Texas Medical Branch Hospitals $^{1-3}$	Galveston, Texas	C. T. Stone, Sr.	3,192	157	8	20	3	160
Baylor University College of Medicine Affiliated Hospitals								
Jefferson Davis Hospital $^{1-3}$	Houston, Texas	J. A. Greene	1,751	225	5	13	3	75
Methodist Hospital $^{1-3}$	Houston, Texas	H. W. Cummings, Jr.	3,582	85	1	3	3	100
Veterans Admin. Hospital $^{1-3}$	Houston, Texas	H. D. Bennett	4,511	235	7	21	3	...
Hermann Hospital $^{1-3}$	Houston, Texas	E. A. Wilkerson	5,880	132	2	6	3	100
University of Texas Postgraduate Medical School Affiliated Hospitals		....	....	...	..	..	3	...
St. Joseph's Hospital $^{3-22}$	Houston, Texas	S. Schnur	1,891	8	1	1	..	220
St. Luke's Episcopal Hospital $^{1-3-22}$	Houston, Texas	P. V. Ledbetter	1,941	32	3	3	..	220
Southern Pacific Hospital $^{3-22}$	Houston, Texas	M. D. Levy, Sr.	722	5	2	2	..	...
University of Texas M. D. Anderson Hospital and Tumor Institute $^{1-3-22}$	Houston, Texas	C. D. Howe	600	124	..	8	..	150
Veterans Admin. Hospital $^{1-3}$	McKinney, Texas	G. A. Edwards	1,507	74	2	4	3	...
Robert B Green Memorial Hospital $^{1-3}$	San Antonio, Texas	L. B. Reppert	932	99	1	2	2	150
Santa Rosa Hospital $^{1-3}$	San Antonio, Texas	D. Sacks	2,734	88	1	1	1	250
Scott and White Memorial Hospitals $^{1-3}$	Temple, Texas	J. G. Rodarte	5,626	55	2	6	3	300
Thomas D. Dee Memorial Hospital $^{1-3}$	Ogden, Utah	G. H. Keyes	2,511	85	2	2	1	300
Dr. W. H. Groves Latter-Day Saints Hospital $^{1-3}$	Salt Lake City	A. P. MacFarlane	3,641	100	1	3	3	225
Holy Cross Hospital $^{1-3}$	Salt Lake City	E. M. Kilpatrick	1,339	39	1	1	1	175
University of Utah College of Medicine Affiliated Hospitals		....	....	...	..	..	3	...
Salt Lake County General Hospital ^{1}	Salt Lake City	M. Wintrobe	927	85	2	19	..	200
Veterans Admin. Hospital (12th Avenue) ^{3}	Salt Lake City	L. Jarcho	1,277	76	4	7	..	...
University of Vermont Affiliated Hospitals								
De Goesbriand Memorial Hospital $^{1-3}$	Burlington, Vt.	C. M. Terrien	1,645	44	1	2	2	180
Mary Fletcher Hospital $^{1-3-359}$	Burlington, Vt.	E. L. Amidon	1,656	54	3	6	2	100
Alexandria Hospital $^{1-3}$	Va	J. Watson	1,732	61	1	3	1	275
University of Virginia	Va.	W. Parson	2,731	82	8	20	3	50
Chesapeake and Ohio	Va.	A. Williams	2,848	37	4	4	1	200
Riverside Hospital $^{1-3}$	Va.	J. W. Massey	2,217	52	1	1	1	250
De Paul Hospital $^{1-3}$	Norfolk, Va.	J. D. Lea	2,005	83	2	4	3	200
Norfolk General Hospital $^{1-3}$	Norfolk, Va	M. R. Whitehill	2,888	101	2	4	3	125
Johnston-Willis Hospital ^{1}	Richmond, Va.	J. M. Hutcheson	2,966	80	2	2	1	250
Medical College of Virginia—Hospital Division $^{1-3-373}$	Richmond, Va.	H. Walker	4,772	192	10	19	3	75
Veterans Admin. Hospital $^{1-3}$	Richmond, Va.	W. T. Thompson, Jr.	5,142	103	9	27	3	...
Jefferson Hospital $^{1-3}$	Roanoke, Va.	R. C. Crawford	1,251	51	1	1	1	200
Lewis-Gale Hospital $^{1-3}$	Roanoke, Va.	R. H. Jones, Jr.	2,053	33	2	2	1	350
Doctors Hospital $^{1-4}$	Seattle	Q. B. DeMarsh	2,500	92	1	2	1	250
	Seattle	R. Simpson	3,516	82	1	2	2	250
		C. E. Watts	4,001	132	1	2	1	225
		....	....	...	..	..	3	...
King County Hosp		R. H. Williams	4,803	345	12	24	..	125
Veterans Admin. Hospital $^{1-3}$	Seattle	R. S. Evans	1,276	135	12	24	..	...
Virginia Mason Hospital $^{1-3}$	Seattle	R. L. King	2,734	94	2	6	3	150
Charleston General Hospital $^{1-3}$	Charleston, W. Va.	W. A. Thornhill, Jr.	2,607	56	2	5	3	225
Memorial Hospital $^{1-3}$	Charleston, W. Va.	P. A. Tuckwiller	2,338	67	1	3	3	250
Chesapeake and Ohio Hospital $^{1-3}$	Huntington, W. Va.	W. E. Bray, Jr.	2,416	26	1	4	1	200
Ohio Valley General Hospital $^{1-3}$	Wheeling, W. Va.	R. N. Lewis	3,528	70	3	9	3	300
La Crosse Lutheran Hospital $^{1-3}$	La Crosse, Wis.	T. E. Gundersen	2,756	39	1	1	2	300
Madison General Hospital $^{1-3}$	Madison, Wis.	A. J. Richtsmeier	2,441	117	3	3	1	150
St. Mary's Hospital $^{1-3}$	Madison, Wis.	R. N. Allin	2,069	62	1	3	3	250
University Hospitals $^{1-3}$	Madison, Wis.	O. O. Meyer	4,312	120	6	18	3	100
St. Joseph's Hospital	Marshfield, Wis.	K. H. Doege	1,818	60	1	2	3	...
Columbia Hospital $^{1-3-377}$	Milwaukee	E. W. Mason	1,272	60	1	3	2	245
Milwaukee County Hospital $^{1-3}$	Milwaukee	F. D. Murphy	10,177	417	8	24	3	207
Milwaukee Hospital $^{1-3-378}$	Milwaukee	E. R. Daniels	2,281	95	1	3	2	245
Mount Sinai Hospital $^{1-3}$	Milwaukee	N. Grossman	1,564	44	1	3	2	300
St. Joseph's Hospital $^{1-3}$	Milwaukee	W. L. Coffey	2,842	98	1	3	3	280
St. Luke's Hospital $^{1-3}$	Milwaukee	J. Meyer	2,868	50	2	2	1	275
St. Mary's Hospital ^{3}	Milwaukee	M. C. F. Lindert	1,725	67	1	1	1	225
Veterans Admin. Hospital $^{1-3-23-358}$	Milwaukee (Wood), Wis.	M. W. Garry	4,587	244	6	20	3	...
Gorgas Hospital ^{1}	Ancon, Canal Zone	E. A. Cleve	2,676	42	2	5	..	345
Queen's Hospital $^{1-3}$	Honolulu, T. H.	H. L. Arnold, Sr.	2,957	140	4	8	3	150
St. Francis Hospital $^{1-3}$	Honolulu, T. H.	T. S. Min	1,588	56	2	4	2	100
Bayamon District Hospital $^{1-3}$	Bayamon, P. R.	E. Martinez	1,213	62	1	3	3	250
San Juan City Hospital $^{1-3}$	San Juan, P. R.	R. S. Diaz Rivera	1,049	57	4	12	3	300
Veterans Admin. Hospital $^{1-3}$	San Juan, P. R.	E. A. Ramirez	1,948	25	2	5	3	...

Numerical and other references will be found on pages 556 through 559.

9. MALIGNANT DISEASES

Residency programs in the following hospitals have been approved for *ONE* year of training by the Council on Medical Education and Hospitals.

Hospitals, 7; Assistant Residencies and Residencies, 25

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
NONFEDERAL							
City of Hope Medical Center [1-3]	Duarte, Calif.	H. R. Bierman	138	52	..	3	40
Presbyterian Hospital-Olmsted Memorial [1-8]	Los Angeles	H. M. Kersten	204	37	1	1	30
Michael Reese Hospital	Chicago	E. Uhlmann	883	67	2	2	...
Montefiore Hospital [1-8]	New York City	D. Laszlo	632	132	..	6	15
American Oncologic Hospital [1-3]	Philadelphia	J. W. Bransfield	995	12	5	5	25
Jeanes Hospital [1-3]	Philadelphia	J. W. Carnwath	3,241	60	6	6	15
University of Texas M. D. Anderson Hospital and Tumor Institute [1-8]	Houston, Texas	E. C. White	600	248	..	2	30

10. NEUROLOGICAL SURGERY

Residency programs in the following hospitals have been approved by the Council and the American Board of Neurological Surgery, through the Residency Review Committee for Neurological Surgery, as offering *acceptable training in the specialty.*

Hospitals, 108; Assistant Residencies and Residencies, 349

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Army Medical Center [1-8]	Washington, D. C.	G. J. Hayes	592	26	1	4	4	...
NONFEDERAL AND VETERANS ADMINISTRATION								
University of Alabama Medical Center			....	..	..	..	3	...
University Hospital and Hillman Clinic [1, 7]	Birmingham, Ala.	J. G. Galbraith	1,001	52	..	2	..	168
Veterans Admin. Hospital [1-3-62]	Long Beach, Calif.	J. D. French	312	17	1	3	3	...
Los Angeles County Hospital [1-62]	Los Angeles	C. W. Rand	2,577	132	1	5	4	216
University of California Medical Center			....	..	..	..	4	...
University Hospital [1-3]	Los Angeles	W. E. Stern	448	28	1	4	..	168
Veterans Admin. Hospital [1-3]	Los Angeles	W. E. Stern	451	17	2	2	..	...
White Memorial Hospital [1-3]	Los Angeles	P. J. Vogel	456	29	1	3	4	170
Collis P. and Howard Huntington Memorial Hospital [1-8]	Pasadena, Calif.	E. B. Dewey-C. H. Shelden	443	7	1	2	4	210
University of California Hospitals			....	..	..	..	4	...
Franklin Hospital [1-3]	San Francisco	H. A. Brown	709	6	1	2	..	200
University of California Hospital [1-3]	San Francisco	J. E. Adams	658	28	1	5	..	210
Veterans Admin. Hospital [1-3-79]	San Francisco	O. W. Jones, Jr.	163	14	..	2	..	...
University of Colorado Medical Center			....	..	..	..	4	...
Colorado General Hospital [1-3]	Denver	C. G. Freed	221	11	1	4	..	150
Denver General Hospital [1-3]	Denver	C. G. Freed	43	7	..	..	..	155
Veterans Admin. Hospital [1-8]	Denver	K. Welch	183	6	..	..	..	...
St. Francis Hospital [1-3]	Hartford, Conn.	R. C. Buckley	771	13	1	1	1	125
Grace-New Haven Community Hospital [1-8]-Hartford Hospital [1-8]	New Haven-Hartford, Conn.	W. J. German-W. B. Scoville	1,788	79	..	7	4	50
Georgetown University Affiliated Hospitals		O. H. Fulcher	....	..	..	..	4	...
Children's Hospital	Washington, D. C.		....	..	..	..	..	...
District of Columbia General Hospital	Washington, D. C.		....	..	..	..	..	...
University Hospital [1-3]	Washington, D. C.		276	15	1	2	..	175
George Washington University Affiliated Hospitals		J. W. Watts	....	..	..	..	3	...
Children's Hospital	Washington, D. C.		....	..	..	..	..	...
District of Columbia General Hospital	Washington, D. C.		....	..	..	..	..	...
University Hospital [1-3]	Washington, D. C.		502	16	..	1	..	170
Emory University Hospital [1-8]	Emory University, Ga.	E. F. Fincher	327	10	1	4	4	225
Loyola University (Stritch School of Medicine) Affiliated Hospitals		H. C. Voris	....	..	..	..	4	...
Mercy Hospital [1-3]	Chicago	H. C. Voris	355	18	1	4	..	200
Veterans Admin. Hospital [1]	Hines, Ill.	E. Oldberg-H. C. Voris	364	13	1	2	..	...
Northwestern University Medical Center			....	..	..	..	4	...
Chicago Wesley Memorial Hospital [1-3]	Chicago	P. C. Bucy	475	10	..	3	4	125
Passavant Memorial Hospital [1-3]	Chicago	L. Davis	142	3	1	4	..	50
Veterans Admin. Research Hospital [1]	Chicago	L. Davis	220	14	..	2	..	...
Evanston Hospital [1-8]	Evanston, Ill.	J. Tarkington	102	4	1	1	..	225
Presbyterian Hospital [1-8]	Chicago	A. Ver Brugghen	267	17	1	2	3	125
St. Luke's Hospital [1-8]	Chicago	E. Oldberg	(See University of Illinois Neuropsychiatric Institute)					
University of Chicago Clinics [1-3]	Chicago	J. P. Evans	352	18	3	6	3	200
University of Illinois Neuropsychiatric Institute [1-3]	Chicago	E. Oldberg	673	29	1	6	4	125
Indiana University Medical Center		R. F. Heimburger	418	32	1	3	4	...
Indiana University Medical Center Hospital [1]	Indianapolis		....	..	..	..	..	165
Veterans Admin. Hospital [1-3]	Indianapolis		....	..	..	..	..	...
State University *of Iowa* Hospitals [1-3]	Iowa City	R. Meyers	481	28	..	3	4	104
University of Kansas Medical Center [1-3]	Kansas City, Kan.	W. Williamson	439	13	1	4	4	125
University of Louisville Affiliated *Hospitals*			....	..	..	..	4	...
Louisville General Hospital [1-3-141]	Louisville, Ky.	R. G. Spurling	645	42	1	3	..	81
Veterans Admin. Hospital [1-4]	Louisville, Ky.	E. Grantham	175	11	1	2	..	...
Charity Hospital of Louisiana								
Tulane University Unit [1]	New Orleans	D. H. Echols	306	11	..	1	1	90
[illegible] Hospital [1-146]	New Orleans	D. H. Echols	319	11	1	4	4	25
[illegible] [1-3]	Baltimore	A. E. Walker	875	30	1	4	4	175
[illegible]	Baltimore	J. G. Arnold	780	26	2	7	4	75
Boston City Hospital [3]	Boston	W. Wegner	294	16	1	5	4	112
Children's Medical Center [1-8]	Boston	F. D. Ingraham	442	..	..	4	4	133
Peter Bent Brigham Hospital [1-8]	Boston	F. D. Ingraham	*Incl. in Surgery*		..	4	..	42
Lahey Clinic [1-8-100]	*Boston*	*G. Horrax*	871	19	8	8	1	[illegible]
Massachusetts General Hospital [1-8]	Boston	J. C. White	882	..	2	5	4	[illegible]
Veterans Admin. *Hospital* [1-3]	Boston (Jamaica Plain)	J. H. Drew	365	31	..	..	..	...
New England *Center Hospital* [1-3]	Boston	*B. Selverstone*	226	8	1	4	4	100
University Hospital [1-3]	Ann Arbor, Mich.	E. A. Kahn	857	58	2	6	4	[illegible]
Grace Hospital [1-3]	Detroit	E. S. Gurdjian	1,176	31	1	3	4	225
Henry Ford Hospital [1-3]	Detroit	*R. S. Knighton*	414	25	2	5	4	225
University of Minnesota *Hospitals* [1-8-202]	Minneapolis	W. T. Peyton	488	13	1	6	4	[illegible]
Mayo Foundation [1-8]	Rochester, Minn.	J. G. Love	2,491	63	5	20	4	175
University Hospital	Jackson, Miss.	O. J. Andy	150	10	4	8	2	250
Barnes Hospital [1-3]	St. Louis	H. G. Schwartz	478	44	1	4	4	75
Dartmouth Medical School Affiliated *Hospitals*		R. G. Fisher	678	27	1	4	4	...
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.		....	..	..	..	..	225
Veterans Admin. Hospital [1-8]	White River Jct., Vt.		....	..	..	..	..	...

Numerical and other references will be found on pages 556 through 559.

10. NEUROLOGICAL SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Albany Hospital [1-3]	Albany, N. Y.	R. D. Whitfield	999	46	1	3	3	160
Kings County Hospital Division II [1-3]	Brooklyn, N. Y.	E. J. Browder	3,402	102	2	6	4	104
Buffalo General Hospital [1-3-239]	Buffalo	W. B. Hamby	519	22	1	3	4	175
Bellevue Hospital Center								
Div. IV—New York University Post-Graduate Medical School [266]	New York City	T. I. Hoen	250	27	2	8	3	71
Albert Einstein Medical Center			....	..	..	..	4	...
Bronx Municipal Hospital Center [1-3]	New York City	L. M. Davidoff	178	23	1	3	..	105
Montefiore Hospital	New York City		....	..	..	..	..	...
Mount Sinai Hospital [1-3]	New York City	S. W. Gross	349	26	..	2	3	75
New York Hospital [1-3]	New York City	B. S. Ray	301	..	..	2	4	206
Presbyterian Hospital [1-3]	New York City	J. L. Pool	725	27	6	9	4	250
St. Vincent's Hospital [1-3]	New York City	C. G. Gutierrez-Mahoney	928	23	1	4	3	125
Veterans Admin. Hospital [1-3-256]	New York City (Bronx)	J. E. Scarff	291	32	1	4	4	...
Strong Memorial—Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	F. P. Smith	385	..	..	2	4	116.67
Duke University Affiliated Hospitals			...	..	..	..	4	...
Duke Hospital [1-3]	Durham, N. C.	B. Woodhall	1,219	22	1	5	..	127
Veterans Admin Hospital	N. C.		....	..	..	..	..	...
North Carolina	N. C.	E. Alexander, Jr.	659	41	1	3	4	125
University of Cl		R. L. McLaurin	....	..	..	..	4	...
Christ Hospital [1]	Cincinnati	F. H. Mayfield	390	15	1	1	..	200
Cincinnati General Hospital [1-3]	Cincinnati	R. L. McLaurin	251	25	1	4	..	90
Good Samaritan Hospital [1-3]	Cincinnati	F. H. Mayfield	174	3	..	1	..	300
Cleveland Clinic Hospital [1-3]	Cleveland	W. J. Gardner	793	28	2	5	4	175
Western Reserve University Affiliated Hospitals			....	..	..	..	4	...
City Hospital [1-3-304]	Cleveland	B. M. Bloor	282	29	2	4	..	162.50
University Hospitals [1-3-305]	Cleveland	F. E. Nulsen	260	13	..	3	..	125
Veterans Admin. Hospital [1-3-309]	Cleveland	F. E. Nulsen	213	17	1	1	..	...
Ohio State University Hospitals			....	..	..	..	4	...
Children's Hospital [1-3]	Columbus, Ohio	M. P. Sayers	446	14	..	..	..	150
University Hospital [1-3]	Columbus, Ohio	H. E. LeFever	546	31	..	3	..	202
White Cross Hospital [1-3-313]	Columbus, Ohio	W. E. Hunt	891	33	1	4	..	290
University of Oklahoma Hospitals [1-3]	Oklahoma City	H. Wilkins	230	17	..	2	4	...
University of Oregon Medical School Affiliated Hospitals			....	..	..	..	4	...
Good Samaritan Hospital			....	..	..	..	..	...
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	G. M. Austin	645	18	1	2	..	100
Graduate Hospital of The University of Pennsylvania [1-3]	Philadelphia	R. A. Groff	496	24	1	3	4	100
Hahnemann Medical College and Hospital [1-3]	Philadelphia	A. K. Olsen	414	15	1	1	3	75
Hospital of the University of Pennsyvania [1-3]	Philadelphia	F. C. Grant	376	28	1	4	4	...
Jefferson Medical College Hospital [1-3]	Philadelphia	R. Jaeger	1,073	27	1	2	4	100
Temple University Hospital [1-3]	Philadelphia	M. Scott	742	14	1	4	4	...
Health Center Hospitals of The University of Pittsburgh School of Medicine [339]			....	..	..	..	4	...
Children's Hospital	Pittsburgh	J. F. Grunnagle	461	24	..	..	..	...
Presbyterian Hospital and Woman's Hospital	Pittsburgh	S. N. Rowe	1,488	48	1	4	..	175
Mercy Hospital [1-3]	Pittsburgh	F. H. Bragdon	501	17	1	3	3	235
Robert Packer Hospital [1-3]	Sayre, Pa.	A. B. King	579	18	1	1	1	200
University of Tennessee Medical Center Hospitals			....	..	..	..	4	...
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	R. L. DeSaussure	1,763	24	1	4	..	260
City of Memphis Hospitals [1-3]	Memphis, Tenn.	E. Semmes	628	22	1	2	..	100
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	W. F. Meacham	676	17	1	4	4	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	S. R. Snodgrass	504	24	1	3	4	160
Baylor University College of Medicine Affiliated Hospitals			....	..	..	..	4	...
Jefferson Davis Hospital [1-3-353]	Houston, Texas	J. Greenwood	193	10	1	3	..	100
Methodist Hospital [1-3]	Houston, Texas	J. Greenwood, Jr.	794	28	..	3	..	100
Veterans Admin. Hospital [1-3-361]	Houston, Texas	J. W. Robertson	309	28	3	5	..	...
University of Virginia Hospitals			....	..	..	..	4	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. G. Crutchfield	819	6	1	4	..	50
Veterans Admin. Hospital [1-3]	Richmond, Va.	J. L. Ulmer	339	9	..	2	..	...
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	J. M. Meredith	896	39	1	4	4	75
University of Washington Affiliated Hospitals			....	..	..	..	4	...
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	A. A. Ward, Jr.	413	52	1	4	..	237
Veterans Admin. Hospital [1-3]	Seattle	J. W. Bell	179	18	1	1	..	...
University Hospitals [1-3]	Madison, Wis.	T. C. Erickson	379	36	1	4	4	100

11. NEUROLOGY

Residency programs in the following hospitals have been approved for THREE years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc. should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level.)

Hospitals, 67; Assistant Residencies and Residencies, 291

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES ARMY							
Army Medical Center [1-3]	Washington, D. C.	J. F. Hammill	480	1	2	6	...
NONFEDERAL AND VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	M. Feld	530	41	1	3	...
Los Angeles County Hospital [1]	Los Angeles	J. M. Nielsen	3,738	322	1	3	246
University of California Hospital [1-3]	Los Angeles	J. S. Lawrence	26	...	1	3	193
Veterans Admin. Hospital [1-3]	Los Angeles	R. Baker	414	10	1	4	...
Stanford University Hospitals [1-3]	San Francisco	H. Newman	245	...	1	1	80
University of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	L. E. Daniels	156	10	2	4	180
Denver General Hospital [1-3]	Denver	L. E. Daniels	53	2	..	..	157
Veterans Admin. Hospital [1-3]	Denver	W. V. Huber	563	35	1	2	...
Grace-New Haven [1-3]	New Haven, Conn.	G. H. Glaser	500	...	1	3	150
Georgetown	Washington, D. C.	F. M. Forster	162	3	1	3	175
George Wash [1-3]	Washington, D. C.	J. W. Watts	....	...	..	..	...
Veterans Admin. Hospital [1-3-106]	Washington, D. C.	H. F. Corson	319	3	2	4	...
Jackson Memorial Hospital [1-3]	Miami, Fla.	P. Scheinberg	456	35	2	5	200

Numerical and other references will be found on pages 556 through 559.

11. NEUROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Northwestern University Medical Center [1-3-388]	Chicago	B. Boshes	436	5	3	9	[illegible]
Chicago Wesley Memorial Hospital [1-3]	Chicago	B. Boshes	340	3	1	1	125
St. Luke's Hospital [1-3]	Chicago	R. Mackay	118	...	1	3	[illegible]
University of Chicago Clinics [1-3]	Chicago	R. B. Richter	265	7	1	3	90
University of Illinois Neuropsychiatric Institute [1-3]	Chicago	E. Oldberg	Incl. in Neurosurg.		..	..	...
Veterans Admin. Hospital [1]	Hines, Ill.	E. Tigay	1,164	44	4	4	...
Indiana University Affiliated Hospitals							
Indianapolis General Hospital [1]	Indianapolis	D. Schuster	252	39	1	1	90
Indiana University Medical Center Hospital [1]	Indianapolis	A. T. Ross	....	...	2	6	165
State University of Iowa Hospitals [1-3-24-30]	Iowa City	A. L. Sahs	1,111	20	2	4	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	A. T. Steegmann	211	1	1	3	125
Veterans Admin. Hospital [1]	Kansas City, Mo.	....	317	25	..	..	...
University of Louisville Affiliated Hospitals							
Louisville General Hospital [1-3]	Louisville, Ky.	E. Roseman	810	65	1	3	131
Veterans Admin. Hospital [1-3-145]	Louisville, Ky.	A. B. Williamson, Jr.	188	18	1	2	...
Charity Hospital of Louisiana							
Tulane University Unit [1]	New Orleans	R. G. Heath	613	14	1	3	100
Baltimore City Hospital [1-2]	Baltimore	J. W. Magladery	810	53	2	3	50
Johns Hopkins Hospital [1-2]	Baltimore	J. W. Magladery	Incl. in Int. Med.		2	2	[illegible]
University Hospital [1-3]	Baltimore	C. Van Buskirk	158	17	2	4	75
Boston City Hospital [1-3]	Boston	D. E. Denny-Brown	362	12	4	9	112
Massachusetts General Hospital [1-3]	Boston	R. D. Adams	725	...	4	5	[illegible]
New England Center Hospital [1-3]	Boston	J. F. Sullivan	332	5	3	6	100
Veterans Admin. Hospital [1-3-143]	Boston (Jamaica Plain)	F. A. Quadfasel	890	13	4	10	...
University Hospital [1-3-149]	Ann Arbor, Mich.	R. N. DeJong	831	18	4	14	134
Henry Ford Hospital [1-3]	Detroit	L. D. Proctor	379	14	1	3	125
University of Minnesota Hospitals							
Minneapolis General Hospital [1-7]	Minneapolis	H. H. Noran	471	60	2	4	[illegible]
University Hospital [1-3-103]	Minneapolis	A. B. Baker	543	15	2	6	165
Veterans Admin. Hospital [1-3]	Minneapolis	R. C. Gray	550	15	2	2	...
Mayo Foundation [1-3]	Rochester, Minn.	L. M. Eaton	3,640	38	4	12	175
Barnes Hospital [1-3]	St. Louis	J. L. O'Leary	714	15	1	3	75
Albany Hospital [1-3]	Albany, N. Y.	F. Hesser	419	12	1	4	100
Kings County Hospital							
Division II [1-3]	Brooklyn, N. Y.	A. M Rabiner	1,740	69	2	4	104
Bellevue Hospital Center							
Div. II—Cornell University [1-3-260]	New York City	F. McDowell	403	14	2	5	105
Div. III—New York University College of Medicine	New York City	M. Bender	735	48	6	12	[illegible]
Bronx Municipal Hospital Center [1-3]	New York City	S. R. Korey	192	22	2	6	105
Montefiore Hospital [1-3]	New York City	T. Lawyer	522	42	3	6	187
Mount Sinai Hospital [1-3]	New York City	M. B. Bender	1,021	36	5	13	[illegible]
New York Hospital [1-3]	New York City	H. G. Wolf	Incl. in Int. Med.		1	1	104
Presbyterian Hospital (Neurological Institute) [1]	New York City	H. H. Merritt	3,121	43	10	15	250
Veterans Admin. Hospital [1-3]	New York City (Bronx)	H. L. Flowers	518	17	1	3	..
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	T. W. Farmer	335	9	2	6	[illegible]
Duke University Hospital [1-3]	Durham, N. C.	E. C. Kunkle	291	4	2	5	102
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	R. L. Masland	351	9	1	3	125
University of Cincinnati College of Medicine Hospital Group							
Cincinnati General Hospital [1-3]	Cincinnati	C. Aring	132	68	2	6	125
University Hospital [1-3]	Cleveland	C. T. Randt	240	32	2	5	125
Hospital of the University of Pennsylvania [1-3]	Philadelphia	G. Gammon	455	2	3	8	...
Jefferson Medical College Hospital [1-7]	Philadelphia	B. J. Alpers	662	12	2	4	100
Philadelphia General Hospital [2]	Philadelphia	A Ornsteen	1,213	142	3	6	121
Baylor University College of Medicine Affiliated Hospitals		W. S. Fields	....	...	..	..	...
Jefferson Davis Hospital	Houston, Texas	....	81	3	2	2	75
Methodist Hospital [1-3]	Houston, Texas	....	119	...	..	1	100
Veterans Admin. Hospital [1-4]	Houston, Texas	....	426	22	2	4	..
Veterans Admin. Hospital [1-3-350]	Richmond, Va.	A. Davis	370	6	1	3	...
University of Washington Affiliated Hospitals							
King County Hospital Unit No 1 (Harborview) [1]	Seattle	F. Plum	806	108	1	5	125
Veterans Admin. Hospital [1-3]	Seattle	M. H. Johnson	168	14	1	1	..
University Hospitals [1-3]	Madison, Wis.	H. Reese	Incl. in Psychiatry		2	4	100

Residency programs in the following hospitals have been approved for TWO years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level.)

Hospitals, 18; Assistant Residencies and Residencies, 33

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Bethesda, Md	J. E. Nardini	571	...	1	2	...
NONFEDERAL AND VETERANS ADMINISTRATION							
University of Alabama Medical Center							
Children's Hospital [1-3]	Birmingham, Ala.	W. S. Littlejohn	55	...	..	..	[illegible]
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala	W. S Littlejohn	55	...	1	1	[illegible]
Veterans Admin. Hospital [1]	Birmingham, Ala.	J. Tucker	107	3	..	..	...
Veterans Admin. Hospital [1-3]	Oakland, Calif.	J K. Smith	138	28	1	3	...
University of California Hospital [1-3]	San Francisco	R B. Aird	453	5	1	3	[illegible]
Veterans Admin. Hospital [1-3]	San Francisco	H. W. Newman	200	2	1	3	...
Veterans Admin. Hospital [1-3]	West Haven, Conn.	L. L. Levy	241	5	..	1	...
District of Columbia General Hospital [1-3]	Washington, D. C.	F. M. Forster-H. Stevens	654	15	2	4	223
Charity Hospital of Louisiana							
Louisiana State University Unit [1]	New Orleans	R. Paddison	532	6	1	3	[illegible]
Elmhurst General Hospital [1-3-17]	Elmhurst, N. Y.	L. V. Lyons	566	34	1	3	104
Cleveland Clinic Hospital [1-3]	Cleveland	G. H. Williams	117	2	1	2	175
Ohio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	D. M. Palmer	Incl. in Int. Med.		..	1	[illegible]
University of Oregon Medical School Hospitals and Clinics [1-327]	Portland, Ore.	R. L. Swank	383	32	1	2	[illegible]
Veterans Admin. Hospital [1-3-340]	Pittsburgh	E. Youngue	393	13	1	1	...
Veterans Admin. Hospital [1-8]	[illegible]	M. H. Thomas	139	11	1	2	...
University of Vermont Affiliated Hospitals		G. A. Schumacher	560	5	1	3	[illegible]
DeGoesbriand Memorial Hospital		....	....	...	..	..	...
Mary Fletcher Hospital	Burlington, Vt.	....		...	..	..	..
University of Virginia Hospital [1-8]	Charlottesville, Va.	W. O. Klingman	Incl. in Psychiatry		1	2	[illegible]

Numerical and other references will be found on pages 556 through 559.

11. NEUROLOGY—Continued

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level.)
Hospitals, 26; Assistant Residencies and Residencies, 53

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1-3]	San Francisco	W. Porter	202	...	1	3	...
UNITED STATES NAVY							
U. S. Naval Hospital [1]	Philadelphia	J. F. McMullin	227	...	1	1	...
UNITED STATES PUBLIC HEALTH SERVICE							
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	M. Shy	195	2	..	7	...
NONFEDERAL AND VETERANS ADMINISTRATION							
White Memorial Hospital [1-3]	Los Angeles	L. B. Mann	122	3	1	1	150
Cook County Hospital [1-3]	Chicago	I. C. Sherman	227	6	2	2	100
Veterans Admin. Hospital [1-3]	Iowa City	M. W. Van Allen	504	32	1	1	...
Veterans Admin. Hospital [1-3]	Topeka, Kan.	M. R. Shaver	301	4	1	1	...
Veterans Admin. Hospital [1-3]	Omaha	F. A. Majka	248	18	1	2	...
Veterans Admin. Hospital [1-3]	East Orange, N. J.	W. O. Howard	155	26	2	4	...
Bergin Pines County Hospital [1-3]	Paramus, N. J.	S. A. Sandler	221	38	1	1	200
Veterans Admin. Hospital [1-3]	Albany, N. Y.	J. H. Cullen	308	17	1	1	...
Jewish Chronic Disease Hospital [1-3]	Brooklyn, N. Y.	A. M. Rabiner	530	31	3	3	175
Veterans Admin. Hospital [1-3-233]	Brooklyn, N. Y.	M. N. Margulies	242	23	1	1	...
Buffalo General Hospital [1-3]	Buffalo	I. Hyman	168	4	1	2	175
Edward J. Meyer Memorial Hospital [1-3]	Buffalo	B. H. Smith	224	5	1	2	248
Fordham Hospital [1-3]	New York City	J. H. Friedman	94	3	1	1	157
Goldwater Memorial Hospital (New York University) Division III	New York City	I. S. Freiman	299	8	1	3	104
Lenox Hill Hospital [1-3]	New York City	A. Bell	419	6	1	1	180
New York Medical College—Metropolitan Medical Center Metropolitan Hospital [1-3]	New York City	I. Tarlov	19	...	2	2	157
Veterans Admin. Hospital [1-3]	New York City (Manhattan)	D. Philpot	279	12	4	8	...
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	A. Tornay	376	10	2	3	...
Medical College of So. Carolina Teaching Hospitals [1]	Charleston, S. Car.	O. R Talbert	116	2	1	2	200
City of Memphis Hospitals [1-3]	Memphis, Tenn.	N. Gotten	....	...	1	1	125
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	T. Harris	Incl. in Psychiatry		1	1	160

12. OBSTETRICS AND GYNECOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Obstetrics and Gynecology, as offering acceptable training in the specialty.
Hospitals, 483; Assistant Residencies and Residencies, 3,436

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital [1-3]	San Francisco	E. Zimmerman	OBG	3,255	2	2	6	3	...
Fitzsimons Army Hospital [1-3]	Denver	J. H. Smith	OBG	2,858	37	2	6	3	...
Army Medical Center [1-3]	Washington, D. C.	H L. Riva	OBG	3,521	11	3	9	3	...
William Beaumont Army Hospital	El Paso, Texas	A. K. Schoenbucher	OBG	4,809	19	2	6	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. W. Simpson	OBG	3,121	5	2	6	3	...
Madigan Army Hospital	Tacoma, Wash.	J. J. Young	OBG	3,343	18	2	4	3	...
Tripler Army Hospital [1]	Honolulu, T. H.	J. P. Moran	OBG	5,277	1	2	6	3	...
UNITED STATES NAVY									
U. S. Naval Hospital [1-3]	Oakland, Calif.	R. W. Tandy	OBG	3,923	3	3	9	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	W. S. Baker, Jr.	OBG	7,431	7	3	9	3	...
U. S. Naval Hospital [1-3]	Great Lakes, Ill.	R. A. Christenson	OBG	3,455	1	2	6	3	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	J. W. Huston	OBG	3,445	..	2	6	3	...
U. S. Naval Hospital [1]	Chelsea, Mass.	M. A. Godinez	OBG	15,051	15	2	4	3	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	R. B. Greenman	OBG	2,529	..	2	6	3	...
U. S. Naval Hospital [1]	Philadelphia	H. J. Hunter	OBG	2,746	8	1	3	3	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	D. A. Callagan	OBG	6,563	5	3	9	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1-3]	Washington, D. C.	J. W. Ross	OBG	4,236	4	2	6	2	216
NONFEDERAL AND VETERANS ADMINISTRATION									
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	T. M. Boulware	OB	2,657	1	1	1	1	250
University of Alabama Medical Center University Hospital and Hillman Clinic [1-3]	Birmingham, Ala	W. N. Jones	OBG	6,659	7	2	6	3	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	O. T. West	OBG	1,865	..	1	3	3	225
Good Samaritan Hospital [1]	Phoenix, Ariz.	C. Van Epps	OBG	4,544	4	1	2	1	250
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	P. Windrow	OBG	1,540	..	1	2	1	300
St. Joseph's Hospital [1-3]	Phoenix, Ariz.	R. Jennett	OBG	5,770	2	1	3	3	300
University Hospital [1]	Little Rock, Ark.	W. E. Brown	OBG	3,290	8	6	15	3	150
Kern County General Hospital [1]	Bakersfield, Calif.	R. L. Wilkening	OBG	2,848	4	2	5	2	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	F. E. Younge	OBG	2,692	2	1	1	1	175
San Joaquin General Hospital [1]	French Camp, Calif.	D. Harrington	OBG	1,488	2	1	3	3	250
General Hospital of Fresno County [1-3]	Fresno, Calif.	H. L. Tieche	OBG	2,683	7	1	3	3	300
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	J. B. Brown	OBG	2,655	2	1	2	2	...
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	L. R. Hill	OB	3,369	..	1	1	1	225
California Hospital [1-3-60]	Los Angeles	G. W. Hewitt-J. F. Nolan	OBG	3,747	2	4	10	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	L. Krohn-G. Rosenblum	OBG	4,275	1	2	4	3	250
Hospital of the Good Samaritan [3]	Los Angeles	P. A. Reynolds	OBG	3,448	5	1	3	3	225

Numerical and other references will be found on pages 556 through 559.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered 8	Total Residencies Offered 8	Length of Approved Program (Years)	Beginning Stipend (Month)
Kaiser Foundation Hospital 1-3	Los Angeles	T. H. Baker	OBG	5,624	1	3	9	3	[illegible]
Los Angeles County Hospital 1	Los Angeles	B. J. Hanley	OBG	23,695	39	4	16	3	[illegible]
Presbyterian Hospital—Olmsted Memorial 1-3	Los Angeles	R. R. Herren-H. Lusk	OBG	2,815	..	2	5	3	200
Queen of Angels Hospital 1-3	Los Angeles	R. F. Kelly	OBG	5,843	..	2	6	3	200
University of California Hospital 1-3	Los Angeles	D. G. Morton	OBG	621	2	2	8	2	175
White Memorial Hospital 1-3	Los Angeles	E. E. Nichols	OBG	2,468	3	1	4	3	[illegible]
Highland-Alameda County Hospital 1-6a	Oakland, Calif.	G. F. Calvin	OBG	3,861	8	2	6	3	200
Kaiser Foundation Hospital 1-3	Oakland, Calif.	R. W. King	OBG	4,061	6	3	9	3	225
Mercy Hospital 1-3	San Diego, Calif.	P. L. Martin	OBG	6,547	1	1	4	3	[illegible]
San Diego County General Hospital 1-3	San Diego, Calif.	J. A. Rust	OBG	1,252	4	1	2	2	175
Children's Hospital 1-3	San Francisco	D. A. Dallas	OBG	2,751	7	2	4	3	150
Kaiser Foundation Hospital 1-3	San Francisco	H. B. Nelson	OBG	3,606	6	2	6	3	200
Mary's Help Hospital 1-3	San Francisco	C. L. Cooley	OBG	2,564	..	1	2	2	200
St. Francis Memorial Hospital 1-3	San Francisco	C. D. Hart	OBG	2,443	1	3	3	1	400
St. Joseph's Hospital 1-3	San Francisco	H. Von Geldern	OBG	1,869	..	1	1	1	300
St. Luke's Hospital 1-3	San Francisco	J. Upton	OBG	1,836	..	1	3	2	200
St. Mary's Hospital 1-3	San Francisco	P. H. Arnot	OBG	2,583	1	1	3	3	150
San Francisco Hospital									
Univ[illegible] 1-3	San Francisco	E. C. Hill	OBG	1,425	26	2	3	1	[illegible]
[illegible] pitals		....	OBG	....	..	..	..	3	...
Stanfo[illegible] University Service 1-3	San Francisco	K. L. Schaupp, Jr.	.....	1,421	17	1	3	..	185
San [illegible]	San Francisco	C. E. McLennan	.....	2,623	2	4	11	..	60
Stanford University Hospitals 1-3	San Francisco	E W. Page	OBG	2,394	5	2	9	3	210
University of California Hospital 1-3	San Jose, Calif.	J. C. Muir	OBG	1,826	6	2	6	3	200
Santa Clara County Hospital 1-3	Santa Monica, Calif.	B H. Watson	OBG	5,254	3	2	2	2	240
St. John's Hospital 1	Torrance, Calif.	D. G. Morton	OBG	3,210	10	2	6	3	240
Harbor General Hospital 1	Denver	M. C. Waddell	OBG	3,166	1	1	2	1	225
Presbyterian Hospital 1-3	Denver	W W. Tucker	OBG	4,155	1	1	3	3	200
St. Joseph's Ho[illegible]		....	OBG	1,799	6	3	9	3	180
University of [illegible]	Denver	E. S. Taylor	.....	....	..	..	..	..	...
Colorado Ge[illegible] H[illegible]pital 1-3	Denver	N. P. Isbell	.....	....	..	..	..	..	...
Denver General Hospital 1-3	Bridgeport, Conn.	C. Griswold	OB	3,236	..	1	2	1	240
Bridgeport Hospital 1-3	Bridgeport, Conn.	F. Kinder	OB	3,697	2	2	4	2	300
St. Vincent's Hospital 1-3	Hartford, Conn.	L. F. Middlebrook	OBG	8,553	5	1	3	3	100
Hartford Hospital 1-3	Hartford, Conn.	F X. Fagan	OBG	4,919	6	1	3	3	125
St. Francis Hospital 1-3	New Britain, Conn.	D. A. Bristoll	OBG	3,112	..	1	3	3	210
New Britain General Hospital 1-3	New Haven, Conn.	C. L. Buxton-J. A. Fiorito	OBG	6,877	7	4	12	3	[illegible]
Grace-New Haven Community Hospital 1-3									
	New Haven, Conn.	C. E. Johnson	OBG	4,094	3	2	5	3	150
Hospital of St. Raphael 3	New London, Conn.	E. H. Blank	OBG	2,772	3	3	3	1	250
Lawrence and Memorial Hospitals 1-3	Norwalk, Conn.	G. V. Gorham	OB	2,392	3	1	1	1	[illegible]
Norwalk Hospital 1-3	Wilmington, Del.	S. W. Rennie	OBG	4,587	4	1	2	2	225
Delaware Hospital 1-3									
Columbia Hospital for Women and Lying-In Asylum 1-3	Washington, D. C	S. W. Hawken-H. J. R. McNitt	OBG	7,418	4	3	9	3	150
	Washington, D. C.	J. Parks-A. Marchetti	OBG	8,081	5	3	8	3	233
District of Columbia General Hospital 1-3	Washington, D. C.	J. K. Cromer	OBG	2,769	1	1	2	2	150
Doctor's Hospital 1-3	Washington, D. C.	A. A. Marchetti	OBG	4,899	2	3	7	3	175
Georgetown University Hospital 1-3	Washington D. C.	J Parks	OBG	6,462	10	2	5	3	150
George Washington University Hospital 1-3	Washington, D. C.	G Ellis	OBG	3,344	1	1	4	3	350
Providence Hospital 1-3									
Washington Hospital Center	Washington, D C.	W. D. Terrell-H. P. Ramsey	OBG	4,528	5	..	..	3	215
Garfield Memorial Hospital 1-3									
	Jacksonville, Fla.	R. W. McDowell-D. M. Baldwin	OBG	2,582	3	2	4	3	150
Duval Medical Center 1-3									
	Jacksonville, Fla.	R. W. McDowell	OBG	3,288	1	2	4	2	325
St. Luke's Hospital 1-3	Jacksonville, Fla.	E. F. McCall-V. Hughes	OBG	5,281	2	2	6	3	225
St. Vincent's Hospital 1-3									
	Miami, Fla.	J. H. Ferguson	OBG	7,651	12	5	13	3	75
Jackson Memorial Hospital 1-3	Miami Beach, Fla.	H. Kraff	OBG	1,308	3	1	2	2	250
Mount Sinai Hospital of Greater Miami 1-3	Miami Beach, Fla.	J. A. Hefferman	OBG	2,502	..	1	1	1	200
St Francis Hospital 1-3	Orlando, Fla.	F. M. Parish-C. J. Collins	OBG	4,207	3	1	3	3	325
Orange Memorial Hospital 1-3									
	St. Petersburg, Fla.	J. Pilkington	OBG	2,916	..	1	1	1	250
Mound Park Hospital 1-3	Tampa, Fla.	C. G. Rorebeck	OBG	2,789	20	1	3	3	[illegible]
Tampa General Hospital 1-3	Atlanta, Ga.	R K Hancock	OBG	8,056	4	5	9	3	[illegible]
Crawford W. Long Memorial Hospital 1-3	Atlanta, Ga.	E. D Colvin	OBG	5,814	2	3	6	3	[illegible]
Georgia Baptist Hospital 1-3	Atlanta, Ga.	J. B. Cross	OBG	9,210	42	5	15	3	100
Grady Memorial Hospital 1-3	Atlanta, Ga.	C. B. Upshaw	OBG	1,887	..	1	1	2	[illegible]
Piedmont Hospital 1	Atlanta, Ga.	W. V. Skiles	OBG	2,877	..	1	3	2	275
St. Joseph's Infirmary 1-3	Augusta, Ga.	W. G. Watson	OBG	4,206	1	2	6	3	250
University Hospital 1	Savannah, Ga.	M. M. Schneider	OBG	873	2	1	3	2	[illegible]
Memorial Hospital of Chatham County 1-3	Chicago	W. A. Boice	OB	1,338	14	2	2	1	150
Augustana Hospital 1-3	Chicago	B. E. Tucker-H. B. Benaron	OB	4,129	..	3	11	1	150
Chicago Maternity Center 1-3-118	Chicago	A. Webster-F H Falls	OBG	26,389	29	8	19	3	100
Cook County Hospital 1-3	Chicago	C. D. Krause	OB	1,792	..	1	1	1	200
	Chicago	A. Daro-H. O. Maryan	OBG	2,144	4	1	1	1	150
Englewood Hospital 3	Chicago	J. P. Fitz-Gibbons	OBG	2,089	2	1	3	2	225
Frank Cuneo Memorial Hospital 3	Chicago	J. J. Donlon	OB	1,779	1	2	2	1	225
Grant Hospital 1	Chicago	F. J. Roos	OBG	2,924	2	2	3	1	115
Hospital of St. Anthony De Padua 1-3	Chicago	H E Schmitz	OBG	3,758	45	4	14	3	75
Illinois Masonic Hospital 1-3	Chicago	A. D. Green	OB	1,503	1	2	2	1	200
[illegible] Maternity Hospital 1-3	Chicago	H. E. Schmitz	OBG	2,154	8	1	4	3	210
[illegible] Home and Hospital 3	Chicago	L. Frankenthal	OBG	4,361	1	2	6	3	110
[illegible]-118	Chicago	C. Fields	OBG	3,366	5	2	6	3	125
M[illegible]									
Michael Reese Hospital	Chicago								
Mount Sinai Hospital 1-3	Chicago	G. Gardner	OBG	3,156	5	2	7	3	125
Northwestern University Medical Center									
Chicago Wesley Memorial Hospital 1-3	Chicago	J. I. Brewer	OBG	2,192	1	2	4	3	[illegible]
Passavant Memorial Hospital 1-3	Evanston, Ill.	D. N. Danforth	OBG	2,921	2	1	3	3	225
[illegible] 1-3	Chicago	H. Boysen	OBG	2,761	4	3	7	3	125
[illegible]	Chicago	R. C. Stepto	OBG	3,211	21	2	5	3	200
J[illegible]	Chicago	W. G. Rurik	OBG	1,913	1	2	2	1	175
[illegible]	Chicago	R. J. Hawkins	OB	4,499	1	6	6	1	200
[illegible]	Chicago	F. J. Walsh	OBG	3,565	..	3	3	2	200
St. Anne's Hospital	Chicago	C. J. Geiger	OBG	1,927	1	1	3	3	[illegible]
St. Elizabeth Hospital 3	Chicago	E. A. Edwards	OBG	2,598	5	2	6	3	125
St. Joseph Hospital 1-3	Chicago	G. L. Rosene	OB	1,939	..	2	2	1	200
St Luke's Hospital 1-3	Chicago	M. E. Davis	OBG	5,370	17	14	23	3	200
Swedish Covenant Hospital 1-3	Chicago								
University of Chicago Clinics 1-3	Chicago								
Billings Hospital									
Chicago Lying-In Hospital and Dispensary									

Numerical and other references will be found on pages 556 through 559.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
University of Illinois Research and Educational Hospitals $^{1-3}$	Chicago	W. F. Mengert	OBG	3,782	10	4	10	3	125
St. Francis Hospital ^{1}	Evanston, Ill.	J. X. Bremner	OBG	4,474	4	1	3	3	175
Little Company of Mary Hospital	Evergreen Park, Ill.	P. E. Lawler-W. T. Carlisle	OBG	6,456	..	3	9	3	175
West Suburban Hospital ^{3}	Oak Park, Ill.	F. H. Falls	OBG	3,960	1	2	4	2	225
Methodist Hospital of Central Illinois ^{3}	Peoria, Ill.	R. W. Brandes	OB	3,363	1	2	2	1	200
St. Francis Hospital $^{1-3}$	Peoria, Ill.	E. P. Burt	OBG	4,690	..	1	2	2	125
St. Anthony Hospital $^{1-3}$	Rockford, Ill.	G. T. Burns	OBG	2,038	..	1	1	1	200
Indiana University Medical Center			OBG	4,066	87	4	16	..	...
Indianapolis General Hospital ^{1}	Indianapolis	C. F. Gillespie	.....	....	..	..	..	3	205
Indiana University Medical Center Hospital ^{1}	Indianapolis	C. P. Huber	.....	....	..	..	..	3	165
Methodist Hospital ^{1}	Indianapolis	J. H. Hawk	OBG	9,006	1	1	3	3	278
St. Vincent's Hospital $^{1-3}$	Indianapolis	P. F. Muller	OBG	3,733	..	1	3	3	275
St. Elizabeth Hospital $^{1-3}$	Lafayette, Ind.	F. W. Peyton	OBG	2,489	3	2	3	2	225
State University of Iowa Hospitals $^{1-3}$	Iowa City	J. H. Randall	OBG	2,722	8	3	9	3	140
University of Kansas Medical Center $^{1-3}$	Kansas City, Kan.	L. A. Calkins	OBG	2,909	9	2	8	3	125
St. Francis Hospital $^{1-3}$	Wichita, Kan.	E. G. Anderson	OBG	4,629	..	2	2	1	275
Wesley Hospital $^{1-3}$	Wichita, Kan.	F. F. Nyberg	OBG	5,254	2	1	1	1	225
St. Joseph Hospital $^{1-3}$	Lexington, Ky.	J. B. Stith	OBG	1,322	1	1	1	1	230
Louisville General Hospital $^{1-3-137}$	Louisville, Ky.	W. O. Johnson	OBG	3,879	3	3	9	3	105
St Joseph Infirmary $^{1-3}$	Louisville, Ky.	E. R. Cadden	OBG	4,237	5	1	3	3	210
Charity Hospital of Louisiana									
Independent Unit ^{1}	New Orleans	A. Jacobs	OBG	5,114	3	3	9	3	100
Louisiana State University Unit ^{1}	New Orleans	M. L. McCall	OBG	8,565	7	5	14	3	100
Tulane University Unit ^{1}	New Orleans	C. G. Collins	OBG	7,322	7	5	14	3	100
Hotel Dieu ^{1}	New Orleans	M. J. St. Romain	OBG	4,107	2	2	2	1	225
Ochsner Foundation Hospital $^{1-147}$	New Orleans	C. Tyrone	OBG	4,791	..	2	6	3	225
Southern Baptist Hospital $^{1-3-149}$	New Orleans	F. O. Brumfield	OBG	6,960	6	2	6	3	225
Touro Infirmary ^{1}	New Orleans	W. E. Levy-C. G. Johnson	OBG	3,947	5	2	6	3	125
Confederate Memorial Medical Center ^{1}	Shreveport, La.	E. E. Dilworth	OBG	6,205	3	3	9	3	125
Baltimore City Hospital $^{1-3}$	Baltimore	P. E. Molumphy	OBG	6,538	23	6	18	3	50
Bon Secours Hospital ^{3}	Baltimore	H. B. McNally-E. Novak	OBG	3,455	3	1	4	3	285
Church Home and Hospital $^{1-3}$	Baltimore	J. K. B. E. Seegar, Jr.	OB	1,185	..	..	1	1	200
Franklin Square Hospital $^{1-3}$	Baltimore	I. A. Siegel	OBG	1,495	2	2	5	3	225
Hospital for Women $^{1-3}$	Baltimore	J. E. Savage-L. Brady	OBG	5,223	5	6	11	3	200
Johns Hopkins Hospital $^{1-3}$	Baltimore	N. J. Eastman-R. W. Te Linde	OBG	6,599	21	12	23	3	150
Lutheran Hospital $^{1-3}$	Baltimore	W. N. Long, Jr.-W. K. Diehl	OBG	3,337	..	3	7	3	220
Maryland General Hospital $^{1-3}$	Baltimore	D. M. Dixon-J. D. Woodruff	OBG	2,496	..	2	6	3	225
Mercy Hospital $^{1-3}$	Baltimore	J. J. Erwin-F. K. Morris	OBG	4,086	1	2	5	3	275
Provident Hospital and Free Dispensary ^{3}	Baltimore	W. B. Butler	OB	1,640	..	2	3	1	200
St. Agnes Hospital $^{1-3}$	Baltimore	J. C. Dumpler-H. B. McNally	OBG	2,682	3	2	5	3	260
St. Joseph's Hospital ^{3}	Baltimore	J. B. Boyle, Jr.-W. A. Dodd	OBG	2,452	2	2	4	3	225
Sinai Hospital $^{1-3}$	Baltimore	I. A. Siegel-A. A. Sondheimer	OBG	5,277	6	4	10	3	110
South Baltimore General Hospital $^{1-3}$	Baltimore	H. A. Beck	OB	1,020	..	3	6	2	180
Union Memorial Hospital $^{1-156}$	Baltimore	J. M. Haws	OBG	2,187	1	1	3	3	215
University Hospital $^{1-3}$	Baltimore	A. L. Haskins	OBG	4,692	9	6	15	3	75
Prince George's General Hospital $^{1-3}$	Cheverly, Md.	J. F. Warren	OBG	3,223	1	2	6	3	200
Beth Israel Hospital $^{1-3}$	Boston	H. H. Rosenfield	OB	2,850	6	2	2	2	58
Boston City Hospital $^{1-3}$	Boston	B. Tenney, Jr.	OBG	5,521	4	7	16	3	112
Boston Lying-In Hospital $^{1-164}$	Boston	D. E. Reid	OB	7,627	2	8	16	3	100
Carney Hospital ^{3}-St. Margaret's Hospital $^{1-3}$	Boston	R. J. Heffernan-D. J. McSweeney	OBG	5,171	2	4	8	3	150
Massachusetts Memorial Hospitals $^{1-3-172}$	Boston	L. Parsons	OBG	1,776	1	4	8	3	100
New England Hospital $^{1-3}$	Boston	M. A. Phillips	OB	1,464	..	2	3	2	75
St. Elizabeth's Hospital $^{1-3}$	Boston	W. J. McDonald	OBG	4,807	1	2	4	3	125
Booth Memorial Hospital $^{1-3}$	Brookline, Mass.	S. C. Kasdon	OB	652	..	2	2	1	200
Free Hospital for Women $^{1-3}$	Brookline, Mass.	G. V. S. Smith	GYN	2,719	13	4	12	3	100
Cambridge City Hospital $^{1-3}$	Cambridge, Mass.	P. P. McGovern	OBG	2,357	3	1	3	3	160
St. Anne's Hospital	Fall River, Mass.	E. F. Shay	OBG	1,975	2	1	1	1	200
Quincy City Hospital $^{1-3}$	Quincy, Mass.	T. J. Slomkowski	OBG	2,956	2	1	2	2	163
St. Joseph Mercy Hospital	Ann Arbor, Mich.	W. Belser	OBG	2,600	2	2	4	3	275
University Hospital $^{1-3}$	Ann Arbor, Mich.	N. F. Miller	OBG	4,332	58	3	12	3	154
Oakwood Hospital $^{1-3}$	Dearborn, Mich.	M. S. Dennis	OBG	15,015	143	1	3	2	250
Crittenton General Hospital $^{1-3}$	Detroit	H. B. Gaston	OBG	4,040	..	2	6	3	250
Detroit Memorial Hospital $^{1-3}$	Detroit	H. F. Jarvis	OBG	2,259	4	1	4	3	275
Evangelical Deaconess Hospital $^{1-3}$	Detroit	L. Braun	OBG	1,357	..	2	2	1	307
Grace Hospital $^{1-3}$	Detroit	L. E. Bauer	OBG	8,674	1	4	12	3	275
Harper Hospital $^{1-3-165}$	Detroit	H. C. Mack	OBG	5,132	4	3	7	3	225
Henry Ford Hospital $^{1-3}$	Detroit	C. P. Hodgkinson	OBG	3,626	6	4	8	3	225
Mount Carmel Mercy Hospital $^{1-3}$	Detroit	J. W. Pichette	OBG	8,874	5	3	12	3	275
Providence Hospital ^{1}	Detroit	H. Henderson	OBG	4,595	3	2	6	3	275
St. John Hospital $^{1-3}$	Detroit	J. Ottaway	OBG	5,327	..	1	3	1	275
St. Joseph Mercy Hospital ^{1}	Detroit	J. E. Clifford-G. E. Rodgers	OBG	2,747	..	1	3	3	310
Sinai Hospital $^{1-3}$	Detroit	E. D. Rothman	OBG	3,407	4	2	4	2	275
Wayne University Affiliated Hospitals			OBG	....	..	..	..	3	...
Herman Kieffer Hospital $^{1-3}$	Detroit	C. S. Stevenson	.....	5,703	1	2	4	..	290
Receiving Hospital $^{1-3-165}$	Detroit	C. S. Stevenson	.....	872	15	4	12	..	289
Woman's Hospital $^{1-3}$	Detroit	C. Shelton-H. M. Nelson	OBG	6,201	5	2	6	3	475
Hurley Hospital $^{1-3}$	Flint, Mich.	I. H. Gutow	OBG	4,955	9	1	3	2	325
Blodgett Memorial Hospital $^{1-3}$	Grand Rapids, Mich.	W. W. Jack	OBG	3,448	7	1	2	2	275
Butterworth Hospital $^{1-3}$	Grand Rapids, Mich.	E. Y. Postma	OBG	9,263	11	2	6	3	300
St. Mary's Hospital $^{1-3}$	Grand Rapids, Mich.	R. Nanzig	OBG	4,188	2	1	2	3	250
Highland Park General Hospital ^{1}	Highland Park, Mich.	R. S. Siddall	OBG	3,101	..	1	3	3	308
Borgess Hospital ^{1}	Kalamazoo, Mich.	E. F. Hersey	OBG	2,541	..	1	2	1	275
Pontiac General Hospital $^{1-3}$	Pontiac, Mich.	H. A. Furlong	OBG	4,612	5	1	3	3	325
St. Joseph Mercy Hospital $^{1-3}$	Pontiac, Mich.	R. Adair	OBG	3,698	1	2	6	3	325
William Beaumont Hospital $^{1-3}$	Royal Oak, Mich.	H. W. Longyear	OBG	4,108	3	1	3	2	...
Saginaw General Hospital $^{1-3}$	Saginaw, Mich.	C. E. Tosbach	OBG	3,263	2	1	3	3	345
Minneapolis General Hospital $^{1-3}$	Minneapolis	M. T. Mitchell	OBG	1,335	1	1	3	3	200
Northwestern Hospital $^{1-3}$	Minneapolis	E. Ingalls	OBG	3,585	..	2	2	2	200
St. Barnabas Hospital $^{1-3}$	Minneapolis	M. T. Mitchell	OBG	3,462	1	2	2	2	225
St. Mary's Hospital $^{1-3}$	Minneapolis	E. C. Maeder	OBG	6,092	9	2	4	2	200

Numerical and other references will be found on pages 556 through 559.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Albert Einstein Medical Center									
Northern Division [1-3]	Philadelphia	G. Weinstein	OBG	4,393	..	2	4	3	150
Southern Division [1-3]	Philadelphia	A. First	OBG	2,461	..	1	3	3	175
Chestnut Hill Hospital [1]	Philadelphia	Z. B. Newton	OBG	2,043	1	1	2	2	350
Episcopal Hospital [1-3]	Philadelphia	J. H. Dugger	OBG	3,060	..	1	3	3	150
Frankford Hospital [1-3]	Philadelphia	G. C. Hanna, Jr.	OBG	4,059	..	1	3	3	250
Germantown Dispensary and Hospital [1-3]	Philadelphia	Z. B. Newton	OBG	2,630	2	1	3	3	155
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	S. L. Israel	GYN	540	2	1	2	2	...
Hahnemann Medical College and Hospital [1-3]	Philadelphia	N. F. Paxson	OBG	2,929	40	3	9	3	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F. L. Payne	OBG	5,650	15	5	15	3	...
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	A. G. Taylor-M. D. Pettit	OBG	2,618	4	2	5	3	110
Jefferson Medical College Hospital [1-3]	Philadelphia	T. Montgomery-J. Montgomery	OBG	5,639	10	2	8	3	100
Lankenau Hospital [1-3]	Philadelphia	R. B. Wilson	OBG	1,460	..	..	..	3	200
Methodist Episcopal Hospital [1-3]	Philadelphia	R. W. Mohler	OBG	1,730	1	1	3	3	150
Misericordia Hospital [1]	Philadelphia	J. E. Lynch	OBG	3,473	2	1	4	3	275
Pennsylvania Hospital [1-3]	Philadelphia	R. A. Kimbrough	OBG	5,960	8	8	8	3	25
Philadelphia General Hospital [5]	Philadelphia	C. Muckle	OBG	7,697	22	2	7	3	121
Philadelphia General Hospital—Northern Division [1-3]	Philadelphia	E. S. Waugh-J. R. Willson	OB	1,797	1	2	2	1	121
Presbyterian Hospital [1-3]	Philadelphia	J. C. Corbit	OBG	2,273	2	1	3	3	130
St. Mary's Hospital [1-3]	Philadelphia	J. Laferty	OBG	1,776	1	1	4	1	250
Temple University Hospital [1-3]	Philadelphia	J. R. Willson	OBG	4,671	11	4	12	3	...
Woman's Hospital [1-3]	Philadelphia	A. G. Taylor-H. Angelucci	OBG	2,644	4	2	4	3	175
Health Center Hospitals of the University of Pittsburgh School of Medicine			OGB	.....	..	..	..	3	...
Elizabeth Steel Magee Hospital	Pittsburgh	H. A. Power-J. A. Hepp	.....	9,939	12	4	12	..	125
Mercy Hospital [1-3]	Pittsburgh	R. A. Gillis-G. J. Carlin	OBG	3,498	2	1	3	3	225
Montefiore Hospital [1-3]	Pittsburgh	H. Cohen	OB	1,804	..	2	2	1	225
Pittsburgh Hospital [1-3]	Pittsburgh	E. A. Conti	OBG	2,452	2	1	2	2	200
St. Francis General Hospital and Rehabilitation Institute [1-3]	Pittsburgh	J. H. Carroll-J. A. Hepp	OBG	2,870	5	2	4	3	200
St. Margaret's Memorial Hospital [1-3]	Pittsburgh	R. E. Tafel	OBG	1,202	1	1	1	2	200
South Side Hospital [1-3]	Pittsburgh	J. A. New-J. Hodgkiss	OBG	280	..	1	3	2	200
Western Pennsylvania Hospital [1-3]	Pittsburgh	A. C. Williamson	OB	2,087	..	1	1	1	225
Reading Hospital [1-3]	Reading, Pa.	F. B. Nugent	OBG	1,154	..	1	1	3	225
Providence Lying-In Hospital	Providence, R. I.	C. S. Houston	OB	9,765	48	2	2	1	125
Rhode Island Hospital [1-3]	Providence, R. I.	H. C. McDuff, Jr.	GYN	1,253	4	2	6	2	100
Medical College of South Carolina Teaching Hospitals [1]	Charleston, S. C.	L. T. Hester, Jr.	OBG	3,641	7	2	6	3	187
Columbia Hospital of Richland County [1-3]	Columbia, S. C.	H. N. Black	OBG	3,411	2	1	3	3	175
McLeod Infirmary [1-3]	Florence, S. C.	R. F. Zeigler	OBG	2,385	1	1	1	1	250
Greenville General Hospital [1-3]	Greenville, S. C.	W. Hearin	OBG	4,287	3	1	3	3	250
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	R. G. Demos	OBG	5,396	3	2	6	3	225
Memorial Hospital [1-3]	Chattanooga, Tenn.	H. E. Jones	OBG	2,690	..	1	1	1	250
University of Tennessee Memorial Research Center and Hospital [1-3]	Knoxville, Tenn.	A. W. Diddle	OBG	183	..	1	3	2	150
Baptist Memorial Hospital [1-3-344]	Memphis, Tenn.	H. B. Turner	OBG	4,971	2	1	3	3	200
City of Memphis Hospitals [1-3]	Memphis, Tenn.	P. C. Schreier	OBG	10,521	9	5	15	3	125
St. Joseph Hospital [1-3-344]	Memphis, Tenn.	H. Feinstein	OBG	3,201	5	1	3	3	250
Baptist Hospital [1-3]	Nashville, Tenn.	T. F. Warder	OBG	5,067	..	2	4	3	175
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	W. F. B. James	OB	1,531	..	2	5	3	170
Nashville General Hospital [1-3]	Nashville, Tenn.	R. L. Chalfant	OBG	1,681	..	2	5	3	200
St. Thomas Hospital [1-3]	Nashville, Tenn.	R. W. Parker	OBG	1,851	..	1	3	2	200
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	F. E. Whitacre	OBG	2,256	2	3	12	3	300
Brackenridge Hospital [1]	Austin, Texas	M. Turner	OBG	2,186	3	..	1	1	250
Baylor University Hospital [1-3]	Dallas, Texas	W. K. Strother, Jr.	OBG	10,238	2	3	7	3	165
Methodist Hospital [1-3-347]	Dallas, Texas	P. D. Newell	OBG	5,355	2	2	4	3	200
Parkland Memorial Hospital [1-3]	Dallas, Texas	J. A. Pritchard	OBG	5,936	6	4	12	3	125
St. Paul's Hospital [1-3]	Dallas, Texas	O. V. Prejean	OBG	6,192	4	1	3	3	125
Hotel Dieu [5]	El Paso, Texas	K. S. Kurita	OBG	1,988	..	1	2	2	150
Harris Hospital [1-3]	Fort Worth, Texas	A. C. Watson	OBG	6,741	3	1	3	1	300
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. Jarvis	OBG	2,267	4	3	9	3	100
Baylor University College of Medicine Affiliated Hospitals									
Jefferson Davis Hospital [1-3]	Houston, Texas	S. H. Wills	OBG	975	2	4	9	3	75
Methodist Hospital [1-3]	Houston, Texas	H. P. Arnold-J. A. Wall	OBG	3,723	..	..	3	3	100
Hermann Hospital [1-3]	Houston, Texas	T. G. Gready-A. M. Faris	OBG	8,699	5	2	6	3	100
University of Texas Postgraduate School of Medicine Affiliated Hospitals									
St. Luke's Episcopal Hospital [1-3]	Houston, Texas	H. L. Gardner	OBG	3,424	19	3	3	1	100
St. Joseph's Hospital [1-3]	Houston, Texas	J. P Salerno	OBG	7,399	5	2	6	3	220
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	F. Rutledge	GYN	577	21	..	6	1	130
Baptist Memorial Hospital [1-3]	San Antonio, Texas	J. Worsham	OBG	6,664	4	1	3	2	150
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	G. G. Passmore	OBG	4,617	6	2	5	3	155
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	V. L. Ward	OBG	3,128	14	3	9	3	300
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	M. S. Sanders	OBG	6,606	2	2	5	2	225
Holy Cross Hospital [1-3-366]	Salt Lake City	W. J. Jones	OBG	2,930	1	1	3	3	275
Salt Lake County Gener[illegible]	Salt Lake City	E. G. Holmstrom	OBG	966	1	2	4	3	175
University of Vermont [illegible]			OBG	....	..	..	..	3	...
De Goesbriand Memor[illegible]	Burlington, Vt.	W. Slavin	.....	49	1	1	3	..	150
Mary Fletcher Hospital [1-3-370]	Burlington, Vt.	J. V. S. Maeck	.. ..	1,782	3	1	4	..	150
Alexandria Hospital [1-3]	Alexandria, Va.	H. Picot	OBG	4,221	1	2	2	1	275
Arlington Hospital [1-3]	Arlington, Va.	J. B. Jacobs	OBG	3,371	..	1	1	1	225
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. N. Thornton, Jr.	OBG	3,205	1	2	8	3	300
Lynchburg General Hospital [1-3]	Lynchburg, Va.	J. R. Saunders	OB	1,765	2	1	1	1	300
Riverside Hospital [1-3]	Newport News, Va.	J. F. Gayle	OBG	2,853	..	1	1	1	250
De Paul Hospital [1-3]	Norfolk, Va.	J. R. Kight	OBG	3,840	6	1	3	3	200
Norfolk General Hospital [1-3]	Norfolk, Va.	B. D. Jones-R. B. Nicholls	OBG	4,201	1	2	4	3	125
Johnston-Willis Hospital [1]	Richmond, Va.	E. Rucker	OB	1,686	..	1	1	1	250
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	H. H. Ware, Jr.-R. H. Hoge	OBG	9,331	3	4	12	3	75
Doctors Hospital [1-3]	Seattle	C. S. Fine	OBG	3,171	..	1	2	1	250
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	R. R. De Alvarez	OBG	1,802	8	2	6	3	125
Providence Hospital [1-3]	Seattle	J. W. Codling	OB	2,885	..	1	1	1	250

Numerical and other references will be found on pages 556 through 559.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Swedish Hospital [1-3]	Seattle	D. J. Thorp	OBG	4,427	..	2	4	1	225
Virginia Mason Hospital [1-3]	Seattle	R. N. Rutherford	OB	2,392	1	1	1	1	150
Sacred Heart Hospital [3]	Spokane, Wash.	R. L. Rotchford	OBG	5,286	4	1	3	3	250
St. Luke's Hospital [1-3]	Spokane, Wash.	D. W. Robinson	OBG	1,494	..	1	1	1	225
Memorial Hospital [1-3]	Charleston, W. Va.	J. L. Crites	OBG	2,251	..	2	2	1	250
Madison General Hospital [1-3]	Madison, Wis.	W. V. Luetke	OBG	2,673	2	1	1	1	150
St. Mary's Hospital [1-3]	Madison, Wis.	E F. Schneiders	OBG	3,128	1	1	1	1	250
University Hospitals [1-3]	Madison, Wis.	B. Peckham	OBG	874	13	3	7	3	100
Columbia Hospital [1-3]	Milwaukee	L. T. Servis	OB	1,608	..	2	2	1	245
Milwaukee County Hospital [1-3-377]	Milwaukee	B. E. Urdan	OBG	2,809	14	2	6	3	207
Milwaukee Hospital [1-3-350]	Milwaukee	F. J. Hofmeister	OBG	1,200	2	1	4	3	245
Mount Sinai Hospital [1-3]	Milwaukee	B. E. Urdan	OBG	3,350	..	1	3	1	300
St. Joseph's Hospital [1-3]	Milwaukee	G. S. Kilkenny	OBG	7,256	2	2	6	3	280
St. Luke's Hospital [1-3]	Milwaukee	R. T. Flynn	OBG	7,161	13	3	3	1	275
St. Mary's Hospital [3-351]	Milwaukee	J. D. Owen-D. Werner	OBG	2,946	..	..	3	2	225
Gorgas Hospital [1]	Ancon, Canal Zone	I. J. Strumpf	OBG	2,573	1	1	3	3	345
Kapiolani Maternity and Gynecological Hospital—St. Francis Hospital [1-3]	Honolulu, T. H.	F. Carty-J. Wong	OBG	7,158	23	2	6	3	100
Queen's Hospital [1-3]	Honolulu, T. H.	R. Y. Sakimoto	OBG	3,393	2	2	5	2	150
Bayamon District Hospital [1-3]	Bayamon, P. R.	E. Arandes	OBG	2,693	7	1	2	1	250
San Juan City Hospital [1-3]	San Juan, P. R.	M. F. Fuster	OBG	5,551	6	3	9	3	300

13. OCCUPATIONAL MEDICINE

The programs in Occupational Medicine which have been approved by the Council and the American Board of Preventive Medicine through the Residency Review Committee for Preventive Medicine, will be found listed under Preventive Medicine, page 534.

14. OPHTHALMOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Ophthalmology through the Residency Review Committee for Ophthalmology, as offering acceptable training in the specialty.

Hospitals, 161; Assistant Residencies and Residencies, 676

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1-3]	San Francisco	R. Kelley	333	19,964	2	6	3	...
Army Medical Center [1-3]	Washington, D. C.	A. Lowrey, Jr.	744	35,247	2	6	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	K. E. Hudson	399	12,975	2	6	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Oakland, Calif.	K. J. Palmberg	278	5,445	1	1	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	R. P. Nadbath	421	23,445	2	6	3	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	S. J. Ryan	297	6,268	1	3	3	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	D. A. Mills	134	3,772	1	2	2	...
U. S. Naval Hospital [1]	Philadelphia	W. L. Smith	266	8,121	1	3	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	New Orleans	W. E. Hoyle	140	5,055	1	2	3	...
U. S. Public Health Service Hospital [1-3]	Baltimore	W. P. Griffey	152	3,874	1	3	3	...
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y.	J. B. Peebles	235	5,134	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	C. L. Cowan	56	2,348	1	1	3	218
NONFEDERAL AND VETERANS ADMINISTRATION								
University of Alabama Medical Center			...	.....	..	..	3	...
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.		1,059	7,717	..	4	..	108
Veterans Admin. Hospital [1]	Birmingham, Ala.	O. Dahlene, Jr.	145	633	1	1	..	...
Veterans Admin. Hospital [1-3-52]	Tuskegee, Ala.	H. G. Dwiggins	154	.....	..	3	3	...
Arkansas Baptist Hospital [1]	Little Rock, Ark.	R. C. Cook	591	.....	2	2	3	250
General Hospital of Fresno County [1-3]	Fresno, Calif.	R. A. Ronald	120	5,089	1	2	2	300
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	G. C. Struble	233	1,631	1	3	3	...
Los Angeles County Hospital [1]	Los Angeles	W. Endres	1,046	1	2	6	2	246
Los Angeles Eye and Ear Hospital [1-3-62]	Los Angeles	O. H. Ellis	322	979	2	4	2	160
University of California Hospital [1-3]	Los Angeles	S. R. Irvine	228	4,523	1	3	3	198
Veterans Admin. Hospital [1-3]	Los Angeles	C. S. Mumma	498	2,862	1	3	3	...
White Memorial Hospital [1-3]	Los Angeles	S. B. Brownsberger	280	8,758	1	2	3	150
Highland-Alameda County Hospital [1]	Oakland, Calif.	M. E. Gump	201	3,744	..	1	3	200
Stanford University Hospitals [1-3-76]	San Francisco	D. K. Pischel	735	8,213	1	3	3	80
University of California Hospital [1-3]	San Francisco	F. C. Cordes	510	10,032	3	7	3	210
Veterans Admin. Hospital [1-3]	San Francisco	M. Fine-D. O. Harrington	165	1,510	1	3	3	...
Harbor General Hospital [1]	Torrance, Calif.	S. R. Irvine	204	6,274	1	2	2	246
University of Colorado Medical Center			...	.....	..	..	3	...
Colorado General Hospital [1-3]	Denver	J. C. Long	195	9,601	2	4	..	180
Denver General Hospital [1-3]	Denver	G. A. Filmer	53	.....	..	..	..	157
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	R. M. Fasanella	494	6,195	1	3	3	50
District of Columbia General Hospital [1-3]	Washington, D. C.	E. Cummings-R. A. Cox	118	4,526	1	2	2	233
Washington Hospital Center								
Episcopal Eye, Ear, and Throat Hospital [3]	Washington, D. C.	G. V. Simpson	1,806	32,504	2	6	3	215
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. F. McKenna	714	.....	2	6	3	75
Grady Memorial Hospital [1-3-391]	Atlanta, Ga.	F. P. Calhoun, Jr.	555	16,471	2	6	3	100
Medical College of Georgia Hospitals [1]	Augusta, Ga.	J. R. Fair	89	696	1	2	3	200
Chicago Eye, Ear, Nose and Throat College and Hospital [1-3]	Chicago	O. B. Nugent	349	11,947	4	5	2	100
Cook County Hospital [1-3]	Chicago	T. N. Zekman	571	15,671	3	6	2	100
Illinois Eye and Ear Infirmary [1-3]	Chicago	(See University of Illinois Hospitals)						
Michael Reese Hospital	Chicago	T. M. Shapira	898	5,626	2	4	2	100
Northwestern University Medical Center			...	.....	..	..	3	...
Chicago Wesley Memorial Hospital [1-3]	Chicago	W. A. Mann	373	.....	1	2	..	125
Passavant Memorial Hospital [1-3]	Chicago	D. Vail	335	.....	1	2	..	50
Veterans Admin. Research Hospital [1]	Chicago	H. Rattner	111	142	..		..	...

Numerical and other references will be found on pages 556 through 559.

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Program Identification	[illegible]
District of Columbia General Hospital [1-3]	Washington, D. C	M. O. Cobey J. Neviaser	ACF	825	4	3	5	31	[illegible]
Washington Hospital Center									
Central Dispensary and Emergency Hospital [1-3]	Washington, D. C.	F. M. Hand-J. S. Neviaser	AF	1,292	3	1	3	51	[illegible]
Jackson Memorial Hospital [1-3]	Miami, Fla.	A. H. Weiland	AF	1,890	11	2	6	76	[illegible]
Variety Children's Hospital	Miami, Fla.	R. P. Keiser	C	435	..	..	..	76	[illegible]
Orange Memorial Hospital [1-3]	Orlando, Fla.	N. C. McCollough	ACF	1,437	2	1	3	..	[illegible]
American Legion Hospital for Crippled Children [1-3]	St. Petersburg, Fla.	R. C. Lonergan	C	508	1	..	1	78	[illegible]
Tampa General Hospital [1-3]	Tampa, Fla.	F. Lindeman	ACF	864	6	1	3	78	[illegible]
Georgia Baptist Hospital	Atlanta, Ga.	....	AF	.....	..	..	..	85	[illegible]
Grady Memorial Hospital [1-3]	Atlanta, Ga.	R. P. Kelly	ACF	868	..	3	9	39	[illegible]
Eugene Talmadge Memorial Hospital	Augusta, Ga.	....	AF	.....	..	..	..	86	[illegible]
University Hospital [1]	Augusta, Ga.	J. L. Chandler	ACF	754	..	..	6	85	[illegible]
Emory University Hospital [1-3]	Emory University, Ga.	R. P. Kelly	A	778	2	..	3	39	[illegible]
Chicago Wesley Memorial Hospital [1-3]	Chicago	E. L. Compere	ACF	1,595	2	1	3	7	[illegible]
Cook County Hospital [1-3]	Chicago	F. Shapiro	ACF	826	7	1	4	..	[illegible]
Michael Reese Hospital	Chicago	S. Sideman	AC	997	..	1	3	42	[illegible]
Passavant Memorial Hospital [1-3]	Chicago	E. Hauser	A	641	..	2	2	7	[illegible]
St. Elizabeth Hospital [3]	Chicago	C. Scuderi	F	1,014	4	1	1	42	[illegible]
St. Luke's Hospital [1-3]	Chicago	C. N. Lambert	AF	449	1	1	2	47	[illegible]
Shriners Hospital for Crippled Children [3]	Chicago	H. A. Sofield	C	290	..	3	3	30	[illegible]
University of Chicago Clinics [1-3]	Chicago	C. H. Hatcher	ACF	987	5	1	4	..	[illegible]
University of Illinois Research and Educational Hospitals [1-3]	Chicago	R. D. Ray	ACF	1,095	9	1	7	47	[illegible]
Veterans Admin. Research Hospital [1]	Chicago	E. L. Compere	AF	268	3	..	2	7	[illegible]
Evanston Hospital [1-3]	Evanston, Ill.	V. C. Turner	AF	906	3	1	1	7	[illegible]
St. Francis Hospital [1]	Evanston, Ill.	J. J. Fahey	AF	1,082	..	2	2	7	[illegible]
Veteran's Admin. Hospital [1]	Hines, Ill.	H. A. Sofield	AF	1,169	7	3	16	30	[illegible]
West Suburban Hospital [3]	Oak Park, Ill.	H. A. Sofield	AF	349	..	1	1	30	[illegible]
St. Francis Hospital [1-3]	Peoria, Ill.	H. E. Cooper	ACF	2,074	4	1	3	..	[illegible]
Indianapolis General Hospital [1]	Indianapolis	L. I. Thomas	AF	846	20	1	4	8	[illegible]
Indiana University Medical Center Hospital [1]	Indianapolis	G. J. Garceau	ACF	742	2	..	7	8	[illegible]
St. Vincent's Hospital [1-3]	Indianapolis	G. J. Garceau	AF	1,097	7	1	3	8	[illegible]
Veterans Admin. Hospital [1-3]	Indianapolis	G. J. Garceau	AF	429	..	..	1	8	...
Veterans Admin. Hospital [1-3]	Des Moines, Iowa	D. N. Gibson	AF	1,266	3	1	3	55	...
State University of Iowa Hospitals [1-3]	Iowa City	C. B. Larson	ACF	2,231	11	4	12	55	[illegible]
University of Kansas Medical Center [1-3]	Kansas City, Kan.	L. Peltier	ACF	526	4	1	3	..	[illegible]
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	R. L. Diveley	AF	188	10	2	4	18	...
St. Francis Hospital [1-3]	Wichita, Kan.	H. O. Marsh	ACF	1,448	2	1	3	..	[illegible]
Good Samaritan Hospital [3]	Lexington, Ky.	K. Thompson	ACF	1,531	1	1	1	59	[illegible]
St. Joseph Hospital [1-3]	Lexington, Ky.	O. B. Murphy	ACF	666	4	1	1	59	[illegible]
Shriners Hospital for Crippled Children [1-3]	Lexington, Ky.	T. D. Yocum	C	140	..	..	2	9	[illegible]
Kosair Crippled Children Hospital [1-3]	Louisville, Ky.	K. A. Fischer	C	705	..	4	4	9	[illegible]
Louisville General Hospital [1-3]	Louisville, Ky.	K. A. Fischer	AF	450	6	..	3	9	[illegible]
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. Lyford, III	AF	540	3	1	3	9	...
Charity Hospital of Louisiana									
Independent Unit [1]	New Orleans	L. K. Loomis	ACF	501	5	1	6	..	[illegible]
Louisiana State University Unit [1]	New Orleans	H. T. Simon	ACF	1,120	13	4	12	..	[illegible]
Tulane University Unit [1]	New Orleans	J. Wickstrom	ACF	1,530	14	3	12	10	[illegible]
Ochsner Foundation Hospital [1-11]	New Orleans	G. A. Caldwell	AF	343	..	1	4	56	[illegible]
Touro Infirmary [1]	New Orleans	G. Berkett	ACF	1,192	1	1	3	10, 56	[illegible]
Veterans Admin. Hospital [1-3]	New Orleans	R. H. Alldredge	AF	361	3	1	4	10	...
Confederate Memorial Medical Center [1]	Shreveport, La	C. R. Reed	ACF	1,253	6	2	8	70	[illegible]
Shriners Hospital for Crippled Children [1]	Shreveport, La.	G. A. Caldwell	C	279	..	..	1	70	[illegible]
Baltimore City Hospital [1-3]	Baltimore	M. M. Ravitch	AF	693	4	..	1	57	[illegible]
Children's Hospital School	Baltimore	....	C	649	..	..	..	57	[illegible]
Johns Hopkins Hospital [1-3]	Baltimore	R. A. Robinson	AF	890	5	..	7	57	[illegible]
Boston City Hospital [1-3]	Boston	A. P. Aitken	AF	2,007	4	..	9	13, 66	...
Children's Medical Center [1-3]	Boston	W. T. Green	C	936	..	5	15	11	[illegible]
Lahey Clinic [1-3]	Boston	G. E. Haggart	A	596	1	4	12	66	[illegible]
Massachusetts General Hospital [1-3]	Boston	J. S. Barr	ACF	1,916	..	4	7	11	[illegible]
Peter Bent Brigham Hospital [1-3]	Boston	W. T. Green	AF	Incl. in Surgery		1	1	11	...
Veterans Admin. Hospital [1-3-17]	Boston (Jamaica Plain)	A. Thibodeau	AF	901	1	2	6	13	[illegible]
Massachusetts Hospital School [1, 18]	Canton, Mass	P. L. Norton	CF	196	2	2	2	13, 66	[illegible]
Shriners Hospital for Crippled Children [3]	Springfield, Mass.	G. D. Hough, Jr.	C	275	..	..	2	66	[illegible]
University Hospital [1-3-18]	Ann Arbor, Mich.	C. E. Badgley	ACF	1,612	14	5	15	..	[illegible]
Children's Hospital [1-3]	Detroit	F. J. Fischer	C	349	..	..	2	12	[illegible]
Harper Hospital [1-3]	Detroit	F. J. Fischer	A	994	2	2	2	12	[illegible]
Henry Ford Hospital [1-3]	Detroit	C. L. Mitchell	ACF	1,340	6	4	12	..	[illegible]
Receiving Hospital [1-3]	Detroit	A. Goetz	F	796	6	..	2	12	[illegible]
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	C. F. Frantz	ACF	763	6	1	3	..	[illegible]
St. Mary's Hospital [1-3]	Grand Rapids, Mich.	G. T Aitken	ACF	630	7	1	3	..	[illegible]
Borgess Hospital [1]	Kalamazoo, Mich.	R. De Long	ACF	862	1	1	4	..	[illegible]
Shriners Hospital for Crippled Children [1-3]	Minneapolis	D. R. Lannin	C	292	..	1	2	16	[illegible]
Veterans Admin. Hospital [1-3]	Minneapolis	E. T. Evans	AF	593	3	..	9	16	[illegible]
Mayo Foundation [1-3]	Rochester, Minn.	H. H. Young	ACF	5,663	19	8	32	..	[illegible]
Gillette State Hospital for Crippled Children [1-3]	St. Paul	W. Cole	C	764	..	..	..	16	[illegible]
Mississippi Baptist Hospital [1-3]	Jackson, Miss.	T. H. Blake	ACF	1,383	1	1	3	73	[illegible]
University Hospital [1]	Jackson, Miss.	W. F. Enneking	AF	167	2	..	2	73	[illegible]
Veterans Admin. Hospital [1-3]	Jackson, Miss.	T. S. Robertson	AF	846	2	..	1	73	[illegible]
Children's Mercy Hospital	Kansas City, Mo.	C. Vilmer	C	217	..	..	1	18	[illegible]
Kansas City General Hospital No. 1	Kansas City, Mo.	F. G. Pipkin	AF	534	18	..	2	18	[illegible]
St. Luke's Hospital [1-3]	Kansas City, Mo.	R. L. Diveley	ACF	980	13	1	3	18	[illegible]
Veterans Admin. Hospital [1]	Kansas City, Mo.	R. L. Diveley	AF	245	5	..	..	18	[illegible]
Barnes Hospital [1-3]	St. Louis	F. Reynolds	ACF	1,317	3	4	9	60	[illegible]
St. Louis City Hospital [1-3]	St. Louis	J. O. Lottes-R. E. Funsch	F	901	4	..	1	46, 60	[illegible]
St. Mary's Group of Hospitals [1-3]	St. Louis	R. M. O'Brien	ACF	735	..	2	6	46	[illegible]
Shriners Hospital for Crippled Children [1]	St. Louis	C. H. Crego, Jr.	C	517	..	..	2	60	[illegible]
Nebraska Orthopedic Hospital [1]	Lincoln, Neb.	F. Teal	C	629	1	1	1	33, 61	[illegible]
Veterans Admin. Hospital [1-3]	Lincoln, Neb.	J. E. M. Thomson	AF	598	4	1	4	33	[illegible]
[illegible] of Nebraska Hospital [1-3]	Omaha	W. R. Hamsa	ACF	105	2	1	1	61	[illegible]
[illegible]orial Hospital	Hanover, N. H.	....	AF	.....	..	..	..	62	[illegible]
[illegible] Hospital [1-3]	Long Branch, N. J.	B. Halbstein	ACF	757	8	1	3	..	[illegible]
[illegible] Children [1-3]	Newark, N. J.	H. Kessler-A. D'Agostini	AC	1,410	2	..	2	67	[illegible]
Hospital Center at Orange		....	ACF	.....	..	..	..	..	[illegible]
New Jersey Orthopaedic Hospital and Dispensary [1-3]	Orange, N. J.	H. T. Hansen	.....	1,288	2	3	3	..	[illegible]
Orange Memorial Hospital [1-3]	Orange, N. J.	H. T. Hansen	.....	.....	..	..	..	..	[illegible]
St. Joseph's Hospital [1]	Paterson, N. J.	R. R. Goldenberg	ACF	783	8	1	3	..	[illegible]
Carrie Tingley Hospital for Crippled Children [1-3]	Truth or Consequences, N. Mex.	E. H. Chapman	C	458	1	1	2	4, 7, 71	

Numerical and other references will be found on pages 556 through 559.

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Program Identification	Beginning Stipend Offered ●
ouse of St. Giles the Cripple [1-3]	Brooklyn, N. Y.	M. Cleveland	C	186	..	..	3	26, 41	100
wish Chronic Disease Hospital [1-3]	Brooklyn, N. Y.	M. Schneider	C	88	1	..	1	84	200
wish Hospital [1-3]	Brooklyn, N. Y	S. Bernstein-A. Kenin	AF	667	..	1	2	84	100
ngs County Hospital									
Division I [1-3]	Brooklyn, N. Y.	C. C. Vitale	ACF	338	..	1	3	..	104
Division II [1-3]	Brooklyn, N. Y.	R. F. Warren	ACF	506	4	1	3	..	104
. Charles Hospital [1-3]	Brooklyn, N. Y	H. C. Fett	C	337	..	4	4	52	125
eterans Admin. Hospital [1-3-236]	Brooklyn, N. Y.	S. E. Chessid	AF	360	1	1	3	52	...
uffalo General Hospital [1-3]	Buffalo	B. E. Obletz	AF	1,000	3	3	6	24	175
hildren's Hospital [1-3]	Buffalo	J. D. Godfrey	C	467	..	..	3	24	125
dward J. Meyer Memorial Hospital [1-3]	Buffalo	J. P. Cole	AF	229	4	1	2	83	248
eterans Admin. Hospital [1-3]	Buffalo	W. M. Chardack	AF	478	1	1	3	24	...
eadowbrook Hospital [1-3]	Hempstead, N. Y.	O. C. Hudson	F	1,893	10	4	4	38	225
assau Hospital [1-3]	Mineola, N. Y.	O. C. Hudson	AF	1,639	2	1	3	38	318
ellevue Hospital Center									
Div. IV—New York University Post-Graduate Medical School [267]	New York City	W. A. L Thompson.	ACF	360	2	4	12	51	71
ronx Municipal Hospital Center [1-3]	New York City	A. Schildhaus	ACF	297	6	2	6	..	105
ospital for Joint Diseases [1-3]	New York City	J. E. Milgram	ACF	2,995	10	6	19	..	80
ospital for Special Surgery [1-3]	New York City	T. C. Thompson	ACF	2,063	10	4	12	22	160
etropolitan Hospital [1-3]	New York City	M. J. Wilson	AF	497	..	2	4	67	104
ount Sinai Hospital [1-3]	New York City	R. K. Lippmann	ACF	1,032	4	2	4	..	75
ew York Polyclinic Medical School and Hospital	New York City	D. M. Bosworth	F	216	1	..	1	26	125
resbyterian Hospital [1]	New York City	F. E. Stinchfield	ACF	2,643	2	6	24	..	250
t. Luke's Hospital	New York City	D. M. Bosworth	ACF	807	2	1	3	41	160
eterans Admin. Hospital [1-3-250]	New York City (Bronx)	T. C. Thompson	AF	714	4	2	4	22	...
eterans Admin. Hospital [1-3]	New York City (Manhattan)	G. Truchly	AF	504	2	2	6	80	...
t. Charles Hospital [1-3]	Port Jefferson, N. Y.	F. S. Child	C	479	..	..	3	38, 43	150
ochester General Hospital [1-3]	Rochester, N. Y.	M. L. Rowe, Jr.	A	.....	..	..	..	31	125
trong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N.Y.	R. P. Schwartz	ACF	1,252	..	3	7	31	117
llis Hospital [1-3]	Schenectady, N. Y.	W. E. Gazeley	ACF	1,309	1	1	3	..	150
t. Vincent's Hospital [1-3]	Staten Island, N. Y	D. M. Bosworth	F	564	1	1	1	26	150
ea View Hospital [1-3-290]	Staten Island, N. Y.	D. M. Bosworth	A	170	2	4	4	26	157
ehabilitation Hospital [1-3]	West Haverstraw, N. Y.	J. C McCauley	C	652	1	4	4	51, 80	261
orth Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	R. B Raney	AF	458	1	1	2	81	156
harlotte Memorial Hospital [1]	Charlotte, N. C.	C. R. Carr	AF	1,484	8	1	4	48	250
uke University Hospital [1-3-297]	Durham, N. C.	L D. Baker	ACF	821	2	6	19	19	127
eterans Admin. Hospital [1-3]	Durham, N. C	E. S. Whitesides	AF	754	2	..	..	19	...
orth Carolina Orthopedic Hospital	Gastonia, N. C.	W. M. Roberts	C	224	..	4	4	19, 81	150
orth Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	H F. Forsyth	AF	970	1	2	4	77	125
kron City Hospital [1-3]	Akron, Ohio	A. E. Davis	AF	1,489	1	2	6	15	250
kron General Hospital [1]	Akron, Ohio	D. I. Minnig	AF	1,236	4	1	4	58	250
ary Day Nursery and Children's Hospital [1-3]	Akron, Ohio	F. B. Roberts	C	898	..	2	6	15, 58	250
hildren's Hospital [1]	Cincinnati	J. A. Freiberg	C	.....	..	..	..	17	...
incinnati General Hospital [1-3]	Cincinnati	J. Freiberg	AF	207	4	2	6	17	75
ewish Hospital [1-3]	Cincinnati	R. Perlman	A	855	5	..	1	17	165
leveland Clinic Hospital [1-3]	Cleveland	J. I. Kendrick	ACF	972	15	2	6	..	175
t. Luke's Hospital [1-3]	Cleveland	W. H. McGaw	ACF	1,187	3	1	4	..	140
niversity Hospitals [1-3]	Cleveland	C. H. Herndon	ACF	1,521	1	..	4	27	125
eterans Admin. Hospital [1-3]	Cleveland	W. H. McGaw	A	554	..	1	4	27	...
hildren's Hospital [1-3]	Columbus, Ohio	H. B. Lacey	C	573	1	..	4	25	200
ount Carmel Hospital [1]	Columbus, Ohio	H. B. Lacey	AF	1,370	3	1	2	25	275
hio State University Hospitals									
University Hospital [1-3]	Columbus, Ohio	W. S. Smith	AF	472	9	..	5	25	202
White Cross Hospital [1-3]	Columbus, Ohio	J. D. Wilson	AF	1,173	1	1	3	25	200
Elyria Memorial Hospital [1-3]	Elyria, Ohio	C. H. Heyman	C	228	..	..	2	27	270
St Vincent's Hospital [1-3]	Toledo, Ohio	A L Bershon	ACF	1,282	5	1	3	..	275
Youngstown Hospital [1-3]	Youngstown, Ohio	W. D. McElroy	AF	1,365	8	1	3	71	175
Bone and Joint Hospital [3]	Oklahoma City	E. D. McBride	AF	2,076	2	1	4	53	300
St. Anthony Hospital	Oklahoma City	W. K. West	A	1,843	4	1	1	53	250
University of Oklahoma Hospitals [1-3-320]	Oklahoma City	D. H. O'Donoghue	ACF	1,252	2	2	8	53	...
Veterans Admin. Hospital [1-3]	Oklahoma City	W. K. West	AF	730	4	..	1	53	...
Emanuel Hospital [1-3]	Portland, Ore	T. J. Boyden	AF	2,073	12	..	2	28	275
Shriners Hospital for Crippled Children [1-3]	Portland, Ore.	L. S. Lucas	C	386	..	..	2	28	100
University of Oregon Medical School									
Hospitals and Clinics [1]	Portland, Ore	W. E. Snell	AF	650	12	2	8	28	100
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	L. F. Bush	AF	785	4	1	3	6	175
State Hospital for Crippled Children [3]	Elizabethtown, Pa	T. Outland	C	315	1	..	..	21	...
Hamot Hospital [1-3]	Erie, Pa	C. W. Fortune	ACF	1,847	5	1	4	..	225
Albert Einstein Medical Center	Philadelphia		ACF	1,537	1	1	4	..	100
Children's Hospital [1-3]	Philadelphia	J. T. Nicholson	C	244	..	..	2	23, 72	75
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	J. Nicholson	A	276	..	1	1	23	100
Hospital of the University of Pennsylvania [1-3]	Philadelphia	P. Colonna	ACF	943	8	2	7	..	65
Jefferson Medical College Hospital [1-3]	Philadelphia	A. F. De Palma	ACF	1,204	3	..	5	21	100
Pennsylvania Hospital [1-3]	Philadelphia	J. T Nicholson	F	284	3	1	1	23	20
Philadelphia General Hospital [3]	Philadelphia	I. Stein	ACF	938	24	2	6	..	121
Shriners Hospital for Crippled Children [1-3]	Philadelphia	J. R. Moore	C	241	..	1	4	29	75
Temple University Hospital [1-3]	Philadelphia	J R. Moore	AF	1,064	9	2	6	29	...
Allegheny General Hospital [1]	Pittsburgh	P. B. Steele-J. A Heberling	ACF	1,897	16	1	2	69, 71, 83	200
Health Center Hospitals of the University of Pittsburgh									
School of Medicine	Pittsburgh	A. Ferguson	.....	2,765	18	3	9	..	125
Children's Hospital [1-3]	Pittsburgh		C	.....	..	..	..	6, 30	...
Presbyterian Hospital	Pittsburgh		AF	.....	..	..	..	20	...
St. Francis Gene									
Rehabilitation	Pittsburgh	C. C. Yount	A	261	..	..	1	69	200
Veterans Admin. Hospital [1-3]	Pittsburgh	P. G Laing	AF	1,456	18	..	3	30	...
Reading Hospital [1-3]	Reading, Pa.	E. J. Morrissey	AF	771	10	1	3	72	225
Robert Packer Hospital [1-3]	Sayre, Pa.	D. R. Baker	ACF	907	4	1	3	..	200
Rhode Island Hospital [1-3]	Providence, R. I.	K. G. Burton	ACF	1,711	9	1	4	..	100
Medical College of South Carolina									
Teaching Hospitals [1]	Charleston, S. C	J. Siegling	ACF	196	2	1	3	45	137
Columbia Hospital of Richland County [1-3]	Columbia, S. C.	W. A. Boyd	ACF	1,749	3	1	3	..	175
Veterans Admin. Hospital	Columbia, S. C.	J. T. Green	AF	328	2	1	3	45	...
Greenville General Hospital [1-3]	Greenville, S. C.	F. Stelling	AF	879	1	..	3	19	250
Shriners Hospital for Crippled Children [1-3]	Greenville, S. C	F. H. Stelling	C	343	..	..	3	19, 48, 77	100
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn	J. J. Killeffer	ACF	1,655	11	1	3	..	225
East Tennessee Baptist Hospital [1-3]	Knoxville, Tenn.		AF	.....	..	..	..	85	...
East Tennessee Crippled Children's Hospital	Knoxville, Tenn.		C	.....	..	..	..	85	...
St Mary's Memorial Hospital [1-3]	Knoxville, Tenn.		AF	.....	..	..	..	85	...
University of Tennessee Memorial Research Center									
and Hospital	Knoxville, Tenn		AF	.....	..	..	..	85	...
Campbell Clinic Hospital [3-345]	Memphis, Tenn.	J. S. Speed	ACF	2,313	2	2	12	..	50

Numerical and other references will be found on pages 556 through 559.

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	[illegible]
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	D. M. Street	AF	1,189	5	2	7	1	
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	E. M. Regen	ACF	1,055	1	1	3	..	[illegible]
Baylor University Hospital [1-3]	Dallas, Tex.	M. P. Knight	A	2,100	2	1	2	32	[illegible]
Parkland Memorial Hospital [1-3]	Dallas, Texas	C. F. Gregory	F	633	5	2	2	32	[illegible]
Texas Scottish Rite Hospital for Crippled Children [1-3]	Dallas, Texas	B. Carrell	C	682	..	1	3	32, 75	[illegible]
Hermann Hospital [1-3]	Houston, Texas	E. T. Smith	ACF	1,870	2	1	4	..	[illegible]
Jefferson Davis Hospital [1-3]	Houston, Texas	F. A. Bloom	ACF	776	8	2	5	49	[illegible]
Veterans Admin. Hospital [1-3]	Houston, Texas	B. F. Boylston	AF	1,103	1	2	5	49	[illegible]
Veterans Admin. Hospital [1-3]	McKinney, Texas	V. M. Bryant	AF	1,268	1	1	6	75	[illegible]
Scott and White Memorial Hospitals [1-3]	Temple, Texas	R. A. Murray	ACF	810	1	1	3	..	[illegible]
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	P. Milligan	AF	928	3	..	3	63	
Primary Children's Hospital [1-3]	Salt Lake City	B. G. Holbrook	C	327	..	..	..	7, 63	
Salt Lake County General Hospital [1]	Salt Lake City	P. A. Pemberton	F	105	1	1	1	34	..
Shriners Hospitals for Crippled Children [1-3]	Salt Lake City	P. A. Pemberton	C	243	..	2	2	34	[illegible]
Veterans Admin. Hospital [3]	Salt Lake City	J. A. Gubler	A	376	1	..	1	34	...
Veterans Admin. Hospital	White River Jct., Vt.	....	F	.....	..	..	..	82	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	J. H. Allen	ACF	769	3	3	6	..	[illegible]
Crippled Children's Hospital [1-3]	Richmond, Va.	J. T. Tucker	C	426	..	..	1	35	[illegible]
Medical College of Virginia Hospital Division [1-3]	Richmond, Va.	M. J. Hoover	AF	1,428	14	3	9	35	[illegible]
Veterans Admin. Hospital [1-3]	Richmond, Va.	R. D. Butterworth	AF	959	1	1	4	35	...
Children's Orthopedic Hospital [1-3]	Seattle	J. F. LeCoco	C	852	1	..	3	36	[illegible]
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	J. F. LeCoco	AF	920	32	..	2	36	[illegible]
Providence Hospital [1-3]	Seattle	B. E. McConville	A	2,180	2	1	1	36	[illegible]
Veterans Admin. Hospital	Seattle	J. W. Bell	A	190	2	..	1	36	...
University Hospitals [1-3]	Madison, Wis.	R. Burns	ACF	727	16	2	5	..	[illegible]
Columbia Hospital [1-3-376]	Milwaukee	A. C. Schmidt	AF	822	8	2	8	37	[illegible]
Milwaukee Children's Hospital [1-3]	Milwaukee	W. P. Blount	C	482	..	2	2	37, 40	15
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	P. L. Carnesale	AF	1,299	8	1	5	40	...
Shriners Hospitals for Crippled Children [1]	Honolulu, T. H.	L. J. Larsen	C	161	..	1	1	50	[illegible]

Residency programs in the following hospitals have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in adult orthopedics and fractures. Training in the basic sciences is given as an integral part of these services or as a separate course. Services collaborating in an integral plan of training are designated by a program number, a list of which is found on pages 519 and 520.

Residents completing three years of training in Adult Orthopedics and Fractures at these hospitals are eligible for limited certification by the American Board of Orthopedic Surgery, not to include children's orthopedic surgery.

Hospitals, 26; Assistant Residencies and Residencies, 86

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	[illegible]
UNITED STATES AIR FORCE									
U. S. Air Force Hospital	San Antonio, Texas	E. W. Brannon	AF	1,029	1	..	6	..	...
UNITED STATES ARMY									
Letterman Army Hospital [1-3]	San Francisco	J. Blair	AF	1,091	1	3	9	..	...
Fitzsimons Army Hospital [1]	Denver	A. W. Spittler	AF	855	..	1	3	..	...
UNITED STATES NAVY									
U. S. Naval Hospital [1-3]	Oakland, Calif.	H. A. Streit	AF	1,494	..	2	4	..	...
U. S. Naval Hospital [1]	Chelsea, Mass.	W. S. Stryker	AF	718	3	3	6	..	...
U. S. Naval Hospital [1]	Philadelphia	W. D. Bundens, Jr.	AF	957	..	2	4	..	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	C. A. Stevenson	AF	2,169	..	2	4	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1-3]	Washington, D. C.	J. R. Gladden	AF	414	3	..	1	..	[illegible]
NONFEDERAL AND VETERANS ADMINISTRATION									
Veterans Admin. Hospital [1-3-102]	Los Angeles	R. Mazet, Jr.	AF	1,147	10	3	7	..	[illegible]
White Memorial Hospital [1-3]	Los Angeles	T. G. Reynolds	AF	374	..	1	3	..	[illegible]
San Diego County General Hospital [1-3]	San Diego, Calif.	F. E. West	AF	387	1	1	3	..	[illegible]
St. Joseph's Hospital [1-3]	San Francisco	R. Soto-Hall	AF	919	2	1	3	..	[illegible]
Methodist Hospital [1]	Indianapolis	W. Notman	AF	1,857	7	1	3	..	[illegible]
Mercy Hospital [1-3]	Iowa City	W. Gelman	AF	772	1	2	2	62	[illegible]
Massachusetts Memorial Hospitals [1-3]	Boston	K. Cristophe	A	229	2	1	1	62	[illegible]
Lynn Hospital [1-3]	Lynn, Mass.	D. M. Killoran	F	1,109	14	1	1	..	[illegible]
Worcester City Hospital [1-3]	Worcester, Mass.	C. King	AF	710	7	1	1	..	...
Veterans Admin. Hospital [1-3]	St. Louis	O. P. Hampton, Jr.	AF	411	1	1	3	..	[illegible]
Albany Hospital [1-3]	Albany, N. Y.	C. Campbell	AF	865	3	1	4	..	[illegible]
Queens Hospital Center [1-3]	Jamaica, N. Y.	F. C. Courten	AF	186	6	1	3	..	
Lenox Hill Hospital [1-3]	New York City	H. Jordan-S. S. Gaynor	AF	749	1	1	1	..	[illegible]
Mount Sinai Hospital [1-3]	Cleveland	A. Miller	AF	952	4	1	2	..	[illegible]
Veterans Admin. Hospital [1-3]	Portland, Ore.	R. C. Merrifield	AF	718	1	1	2	..	[illegible]
Hahnemann Medical College and Hospital [1-3]	Philadelphia	E. O. Geckeler	AF	956	6	2	4	..	...
Veterans Admin. Hospital [1-3-337]	Philadelphia	A. F. DePalma	AF	596	..	..	2	..	[illegible]
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. W. N. Eggers	AF	712	2	2	4	..	

Residency programs in the following hospitals have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in children's orthopedic surgery as an independent [illegible] of these services also participate in an integrated program offering full training in all categ[illegible] Surgery and are also listed on pages 515 through 518.

Hospitals, 12; Assistant Residencies and Residencies, 17

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	[illegible]
NONFEDERAL									
Children's Hospital [1]	Los Angeles	S. S. Mathews	C	628	..	..	1	..	[illegible]
Shriners Hospital for Crippled Children [1-3]	Los Angeles	G. W. Westin	C	272	..	2	2	..	[illegible]
Children's Hospital of the East Bay [1]	Oakland, Calif.	E. N. Ewer	C	423	..	1	1	..	[illegible]
Newington Home and Hospital for Crippled Children [1-3]	Newington, Conn.	B. H. Curtis	C	501	..	4	4	..	[illegible]
Hope Haven Hospital	Jacksonville, Fla.	F. L. Fort	C	302	..	..	1	..	[illegible]
American Legion Hospital for Crippled Children [1-3]	St. Petersburg, Fla.	R. C. Lonergan	C	508	1	..	1	..	[illegible]
Scottish Rite Hospital for Crippled Children	Decatur, Ga.	J. H. Kite	C	279	..	1	1	..	[illegible]
Children's Memorial Hospital [1-3]	Chicago	C. N. Pease	C	369	..	..	1	..	[illegible]
Shriners Hospital for Crippled Children [1-3]	Lexington, Ky.	T. D. Yocum	C	140	..	..	2	..	[illegible]
James Lawrence Kernan Hospital for Crippled Children [1-3]	Baltimore	A. F. Voshell	C	501	..	..	2	..	[illegible]
Primary Children's Hospital [1-3]	Salt Lake City	B. G. Holbrook	C	327	..	..	..	..	...
Shriners Hospitals for Crippled Children [1]	Spokane, Wash.	N. R. Brown	C	223	..	..	1	..	

Numerical and other references will be found on pages 556 through 559.

15. ORTHOPEDIC SURGERY—Continued

ORTHOPEDIC SURGERY—PROGRAM IDENTIFICATION

Program Number	Hospital	Location
1.	Arkansas Children's Home and Hospital	Little Rock, Ark.
	Veterans Admin. Hospital	Memphis, Tenn.
2.	Children's Hospital of the East Bay	Oakland, Calif.
	Samuel Merritt Hospital	Oakland, Calif.
	Veterans Admin. Hospital	San Francisco
	Children's Hospital	San Francisco
	Fra[illegible] Hospital	San Francisco
	San [illegible]	San Francisco
	Shri[illegible]	San Francisco
	Universit[illegible]	San Francisco
3.	Shriners [illegible]	Los Angeles
	Highland [illegible]	Oakland, Calif
	Veterans Admin. Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Stanford University Hospital	San Francisco
4.	Children's Hospital	Denver
	Colorado General Hospital	Denver
	Denver General Hospital	Denver
	Carrie Tingley Hospital for Crippled Children	Truth or Consequences, N. Mex.
5.	Grace-New Haven Community Hospital	New Haven, Conn.
	Newington Home and Hospital for Crippled Children	Newington, Conn.
6.	George F. Geisinger Memorial Hospital	Danville, Pa.
	Children's Hospital	Pittsburgh
7.	Chicago Wesley Memorial Hospital	Chicago
	Passavant Memorial Hospital	Chicago
	Veterans Admin. Research Hospital	Chicago
	Evanston Hospital	Evanston, Ill.
	St. Francis Hospital	Evanston, Ill.
	Carrie Tingley Hospital for Crippled Children	Truth or Consequences, N. Mex.
	Primary Children's Hospital	Salt Lake City
8.	Veterans Admin. Hospital	Indianapolis
	Indianapolis General Hospital	Indianapolis
	Indiana University Medical Center	Indianapolis
	St. Vincent's Hospital	Indianapolis
9	Shriners Hospital for Crippled Children	Lexington, Ky.
	Veterans Admin. Hospital	Louisville, Ky.
	Kosair Crippled Children Hospital	Louisville, Ky.
	Louisville General Hospital	Louisville, Ky.
10.	Veterans Admin. Hospital	New Orleans
	Charity Hospital of Louisiana Tulane University Unit	New Orleans
	Touro Infirmary	New Orleans
11.	Children's Medical Center	Boston
	Massachusetts General Hospital	Boston
	Peter Bent Brigham Hospital	Boston
12.	Children's Hospital	Detroit
	Harper Hospital	Detroit
	Receiving Hospital	Detroit
13.	Veterans Admin. Hospital	Boston
	Boston City Hospital	Boston
	Massachusetts Hospital School	Canton, Mass.
14.	Rehabilitation Hospital	West Haverstraw, N. Y.
	University of Virginia Hospital	*Charlottesville, Va.*
15.	Mary Day Nursery and Children's Hospital	Akron, Ohio
	Akron City Hospital	Akron, Ohio
16.	Veterans Admin. Hospital	Minneapolis
	Shriners Hospital for Crippled Children	Minneapolis
	Gillette State Hospital for Crippled Children	St. Paul
17.	Children's Hospital	Cincinnati
	Cincinnati General Hospital	Cincinnati
	Jewish Hospital	Cincinnati
18.	Veterans Admin. Hospital	Wadsworth, Kansas
	Children's Mercy Hospital	Kansas City, Mo.
	Kansas City General Hospital No. 1	Kansas City, Mo.
	St. Luke's Hospital	Kansas City, Mo.
	Veterans Admin. Hospital	Kansas City, Mo.
19.	Duke Hospital	Durham, N. C.
	Veterans Admin. Hospital	Durham, N. C.
	North Carolina Orthopaedic Hospital	Gastonia, N. C.
	Greenville General Hospital	Greenville, S. C.
	Shriners Hospital for Crippled Children	Greenville, S. C.
20.	Alfred I. du Pont Institute of the Nemours Foundation	Wilmington, Del.
	U. S. Naval Hospital	Bethesda, Md.
21.	State Hospital for Crippled Children	Elizabethtown, Pa.
	Jefferson Medical College Hospital	Philadelphia
22.	Veterans Admin. Hospital (Bronx)	New York City
	Hospital for Special Surgery	New York City
23.	Children's Hospital	Philadelphia
	Graduate Hospital of the University of Pennsylvania	Philadelphia
	Pennsylvania Hospital	Philadelphia
24.	Veterans Admin. Hospital	Buffalo
	Buffalo General Hospital	Buffalo
	Children's Hospital	Buffalo
25.	Children's Hospital	Columbus, Ohio
	Mount Carmel Hospital	Columbus, Ohio
	Ohio State University Hospitals University Hospital	Columbus, Ohio
	White Cross Hospital	Columbus, Ohio
26.	House of St. Giles the Cripple	Brooklyn
	New York Polyclinic Medical School and Hospital	New York City
	St. Vincent's Hospital	Staten Island, N. Y.
	Seaview Hospital	Staten Island, N. Y.
27.	University Hospital	Cleveland
	Veterans Admin. Hospital	Cleveland
	Elyria Memorial Hospital	Elyria, Ohio
28.	Emanuel Hospital	Portland, Oregon
	Shriners Hospital for Crippled Children	Portland, Oregon
	University of Oregon Medical School Hospitals and Clinics	Portland, Oregon
29.	Shriners Hospital for Crippled Children	Philadelphia
	Temple University Hospital	Philadelphia
30.	Children's Hospital	Pittsburgh
	Presbyterian Hospital	Pittsburgh
	Veterans Administration Hospital	Pittsburgh
31.	Rochester General Hospital	Rochester, N. Y.
	Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
32.	Baylor University Hospital	Dallas, Texas
	Parkland Hospital	Dallas, Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas
33.	Nebraska Orthopedic Hospital	Lincoln, Nebr.
	Veterans Admin. Hospital	Lincoln, Nebr.
34.	Veterans Admin. Hospital	Salt Lake City
	Salt Lake County General Hospital	Salt Lake City
	Shriners Hospital for Crippled Children	Salt Lake City
35.	Veterans Admin. Hospital	Richmond, Va.
	Crippled Children's Hospital	Richmond, Va.
	Medical College of Virginia-Hospital Div.	Richmond, Va.
36.	Veterans Admin. Hospital	Seattle
	Children's Orthopedic Hospital	Seattle
	King County Hospital, Unit 1 (Harborview)	Seattle
	Providence Hospital	Seattle
37.	Columbia Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
38.	Meadowbrook Hospital	Hempstead, N. Y.
	Nassau Hospital	Mineola, N. Y.
	St. Charles Hospital	Port Jefferson, N. Y.
39.	Grady Memorial Hospital	Atlanta, Ga.
	Emory University Hospital	Emory University, Ga.
40.	Veterans Admin. Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
41.	House of St. Giles the Cripple	Brooklyn
	St. Luke's Hospital	New York City
42.	Michael Reese Hospital	Chicago
	St. Elizabeth's Hospital	Chicago
43.	Hospital of St. Raphael	New Haven, Conn.
	St. Charles Hospital	Port Jefferson, N. Y.
44.	Veterans Admin. Hospital	Birmingham, Ala.
	Crippled Children's Hospital	Birmingham, Ala.
	University Hospital and Hillman Clinic	Birmingham, Ala.
45.	Veterans Admin. Hospital	Columbia, S. Car.
	Medical College of South Carolina Teaching Hospitals	Charleston, S. Car.
46.	St. Louis City Hospital	St. Louis
	St. Mary's Group of Hospitals	St. Louis
47.	St. Luke's Hospital	Chicago
	University of Illinois Research and Educational Hospital	Chicago
48.	Charlotte Memorial Hospital	Charlotte, N. Car.
	Shriners Hospital for Crippled Children	Greenville, S. Car.
49.	Veterans Admin. Hospital	Houston, Texas
	Jefferson Davis Hospital	Houston, Texas
50.	Veterans Admin. Hospital	Hines, Illinois
	Shriners Hospital for Crippled Children	Chicago
	Shriners Hospital for Crippled Children	Honolulu, T. H.
	West Suburban Hospital	Oak Park, Ill.
51.	Bellevue Hospital Center, Division IV-New York University Postgraduate Med. School	New York City
	Rehabilitation Hospital	*West Haverstraw, N. Y.*
52.	Veterans Admin. Hospital	Brooklyn
	St. Charles Hospital Orthopedic Clinic	Brooklyn
53.	Veterans Admin. Hospital	Oklahoma City
	Bone and Joint Hospital	Oklahoma City
	St. Anthony Hospital	Oklahoma City
	University Hospitals	Oklahoma City
54.	Central Dispensary & Emergency Hospital	Washington, D. C.
	District of Columbia General Hospital	Washington, D. C.
55.	Veterans Admin. Hospital	Des Moines, Iowa
	University Hospitals	Iowa City
56.	Ochsner Foundation Hospital	New Orleans
	Touro Infirmary	New Orleans
57.	Children's Hospital School	Baltimore
	Johns Hopkins Hospital	Baltimore
	Baltimore City Hospital	Baltimore
58.	Akron General Hospital	Akron, Ohio
	Mary Day Nursery and Children's Hospital	Akron, Ohio
59.	Good Samaritan Hospital	Lexington, Ky.
	St. Joseph's Hospital	Lexington, Ky.
60.	Barnes [illegible]	St. Louis
	St. Lou[illegible]	St. Louis
	Shriners [illegible]	St. Louis
61.	Nebraska Orthopedic Hospital	Lincoln, Neb.
	University of Nebraska Hospital	Omaha
62.	Massachusetts Memorial Hospital	Boston
	Lynn Hospital	Lynn, Mass.
	Newington Home and Hospital for Crippled Children	Newington, Conn.
63.	Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City
	Primary Children's Hospital	Salt Lake City
64.	Veterans Admin. Hospital	Long Beach, Calif.
	Children's Hospital Center	Los Angeles, Calif.
65.	Harbor General Hospital	Torrance, Calif.
	Orthopedic Hospital	Los Angeles, Calif.
66.	Boston City Hospital	Boston
	Lahey Clinic	Boston
	Massachusetts Hospital School	Canton, Mass.
	Shriners Hospital for Crippled Children	Springfield, Mass.
67.	Hospital for Crippled Children	Newark, N. J.
	Metropolitan Hospital	New York City
68.	Crippled Children's Clinic & Hospital	Birmingham, Ala.
	Lloyd Noland Hospital	Fairfield, Ala.
69.	Allegheny General Hospital	Pittsburgh, Pa.
	St. Francis General and Rehabilitation Institute	Pittsburgh, Pa.
70.	Confederate Memorial Hospital	Shreveport, La.
	Shriners Hospital for Crippled Children	Shreveport, La.
71.	Allegheny General Hospital	Pittsburgh, Pa.
	Youngstown Hospital	Youngstown, Ohio

15. ORTHOPEDIC SURGERY—Continued

ORTHOPEDIC SURGERY—PROGRAM INDENTIFICATION

Program Number	Hospital	Location
72.	Children's Hospital	Philadelphia
	Reading Hospital	Reading, Pa.
73.	Mississippi Baptist Hospital	Jackson, Miss.
	University Hospital	Jackson, Miss
	Veterans Admin. Hospital	Jackson, Miss.
74.	Veterans Admin. Hospital	Denver
	Carrie Tingley Hospital for Crippled Children	Truth or Consequences, New Mexico
75.	Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas
	Veterans Administration Hospital	McKinney, Texas
76.	Jackson Memori [illegible]	Miami, Florida
	Variety Children [illegible]	Miami, Florida
77.	North Carolina [illegible]	[illegible]ton-Salem, N. C.
	Shriners Hospita [illegible]	Greenville, S. C.
78.	Tampa General [illegible]	Tampa, Florida
	American Legio [illegible] for Crippled Children	St. Petersburg, Fla.
79.	Orthopaedic Hospital	Los Angeles, Calif.
	St. Mary's Hospital	San Francisco, Calif.

Program Number	Hospital	
80.	Veterans Admin. Hospital (Manhattan)	New York C
	Rehabilitation Hospital	West Haverstraw, N.
81.	North Carolina Memorial Hospital	Chapel Hill, N.
	North Carolina Orthopedic Hospital	Gastonia, N.
82.	Newington Home and [illegible]	
	Mary Hitchcock Memo	
	Veterans Admin. Hosp	White River Jct., V
83.	Edw. J. Meyer Mem [illegible]	Buffalo, N.
	Allegheny General	Pitts
84.	Jewish Chronic Disease Hospital	Brooklyn, N.
	Jewish Hospital	Brooklyn, N.
85.	East Tennessee Cripp [illegible]	Knoxville, Te
	East Tennessee Bapti	Knoxville, Te
	St. Mary's Memorial	Knoxville, Te
	University of Tennessee Memorial Research Center & Hospital	Knoxville, Te
86.	Georgia Baptist Hospital	Atlanta, G
	Eugene Talmadge Memorial Hospital	Augusta, G
	University Hospital	Augusta, G

16. OTOLARYNGOLOGY

Residency programs in the following hospitals have been approved by the Council, the American Board of Otolaryngology and the American College of Surgeons, through the Residency Review Committee for Otolaryngology, as offering acceptable training in the specialty.

Hospitals, 129; Assistant Residencies and Residencies, 447

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Beginning Annual Stipend
UNITED STATES ARMY							
Army Medical Center[1-3]	Washington, D. C.	H. S. Murphey	1,400	15,114	2	6	...
Brooke Army Hospital[1-3]	San Antonio, Texas	T. L. Hartridge	690	11,191	2	6	...
UNITED STATES NAVY							
U. S. Naval Hospital[1-3]	Oakland, Calif.	K. J. Palmberg	808	6,117	1	3	...
U. S. Naval Hospital[1]	San Diego, Calif.	L. E. Wible	1,781	12,244	1	3	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	G. W. Taylor, Jr.	1,048	6,454	1	3	...
U. S. Naval Hospital[1]	Philadelphia	W. C. Livingood	673	8,937	1	3	...
NONFEDERAL AND VETERANS ADMINISTRATION							
University of Alabama Medical Center							
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	F. S. Moody	690	2,755	1	3	[illegible]
Veterans Admin. Hospital[1]	Birmingham, Ala.	M. L. Naramore	72	579	..	..	...
Los Angeles County Hospital[1]	Los Angeles	L. House-A. Miller	1,958	19	3	7	[illegible]
University of California Hospital	Los Angeles	J. J. Pressman	386	4,978	1	3	[illegible]
Veterans Admin. Hospital[1-3]	Los Angeles	O. S. Mumma	716	3,837	1	3	...
White Memorial Hospital[1-3]	Los Angeles	L. R. House	955	5,445	1	2	[illegible]
Harbor General Hospital[-26]	Torrance, Calif.	S. Kaplan	477	2,299	1	1	[illegible]
Stanford University Hospitals[1-3]	San Francisco	R. C. McNaught	474	5,888	1	3	[illegible]
San Francisco Hospital (Stanford Service)[1-3-26]	San Francisco	S. Von Christierson	237	1	..	1	[illegible]
University of California Hospital[1-3]	San Francisco	F. A. Sooy	468	6,016	2	3	[illegible]
Children's Hospital[1-3-26]	San Francisco	R. C. Martin	991	715	1	1	[illegible]
San Francisco Hospital							
(University of California Service)[1-3-26]	San Francisco	F. A. Sooy	239	.....	1	1	[illegible]
Veterans Admin. Hospital[1-3-73]	San Francisco	W. P. Work	333	3,446	1	3	[illegible]
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	J. A. Kirchner	812	4,227	1	3	[illegible]
Washington Hospital Center							
Episcopal Eye, Ear and Throat Hospital[3]	Washington, D. C.	V. A. Alfaro	5,023	16,252	2	6	[illegible]
Tampa General Hospital[1-3]	Tampa, Fla.	J. B. Farrior	426	1	1	3	[illegible]
Grady Memorial Hospital[1-3]	Atlanta, Ga.	W. C. Warren, Jr.	.....	.....	1	3	[illegible]
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital[1-3]	Chicago	G. E. Shambaugh, Jr.	1,311	1	1	1	[illegible]
Cook County Hospital[1-3]	Chicago	S. J. Pearlman	1,219	24,691	1	5	[illegible]
Michael Reese Hospital[-26]	Chicago	N. Leshin	2,047	2,246	..	..	[illegible]
St. Luke's Hospital[1-3-26]	Chicago	P. H. Holinger	1,057	10	..	..	[illegible]
Veterans Admin. Research Hospital[1-26]	Chicago	J. Waller	137	264	..	1	[illegible]
University of Chicago Clinics[1-3]	Chicago	J. R. Lindsay	504	8,024	1	4	[illegible]
University of Illinois Hospitals							
Illinois Eye and Ear Infirmary[1-3]	Chicago	F. L. Lederer	940	33,130	5	15	[illegible]
Presbyterian Hospital[1-3-26]	Chicago	S. A. Friedberg	601	2,114	1	2	[illegible]
Research and Educational Hospitals[1-3]	Chicago	F. L. Lederer	638	12,110	1	3	[illegible]
Veterans Admin. Hospital[1]	Hines, Ill.	F. L. Lederer	466	.....	2	4	[illegible]
Indiana University Medical Center							
Indianapolis General Hospital[1-26]	Indianapolis	D. Brown	483	6,449	1	3	[illegible]
Indiana University Medical Center Hospital[1]	Indianapolis	M. W. Manion	278	1,448	1	4	[illegible]
State University of Iowa Hospitals[1-3]	Iowa City	D. M. Lierle	2,589	5,297	4	12	[illegible]
Veterans Admin. Hospital[1-3-26]	Iowa City	.....	.....	.....	..	..	[illegible]
University of Kansas Medical Center[1-3]	Kansas City, Kan.	G. O. Proud	689	10,704	1	3	[illegible]
Kansas City General Hospital No 1[26]	Kansas City, Mo.	P. Barelli	252	4,021	..	1	[illegible]
Veterans Admin. Hospital[1-26]	Kansas City, Mo.	H. A. Knauff	222	.....	..	..	[illegible]
University of Louisville Medical Center							
Louisville General Hospital[1-3]	Louisville, Ky.	W. C. Wolfe	72	6,501	..	2	[illegible]
Veterans Admin. Hospital[1-3-26]	Louisville, Ky.	H. Oppenheim	177	580	1	2	[illegible]
Charity Hospital of Louisiana							
Louisiana State University Unit[1]	New Orleans	V. H. Fuchs	720	7,081	2	4	[illegible]
Tulane University Unit[1]	New Orleans	J. W. McLaurin	985	7,535	2	4	[illegible]
Eye, Ear, Nose and Throat Hospital[1]	New Orleans	C. E. Granberry	3,872	13,227	6	10	[illegible]
Baltimore Eye, Ear, Nose and Throat Hospital[1-3-166]	Baltimore	A. T. Lieberman	3,271	8,428	1	3	[illegible]
Johns Hopkins Hospital[1-3-154]	Baltimore	J. E. Bordley	1,126	7,742	2	7	[illegible]
Mercy Hospital[1-3]	Baltimore	T. A. Schwartz	1,576	1,799	1	1	[illegible]
South Baltimore General Hospital[1-3]	Baltimore	S. L. Fox	884	325	2	3	[illegible]
University Hospital[1-3]	Baltimore	T. R. O'Rourk	187	.....	1	3	[illegible]
Boston City Hospital[1-3]	Boston	A. J. Gorney	1,316	15,099	3	7	[illegible]
Massachusetts Eye and Ear Infirmary[1-3-302]	Boston	L. A. Schall	3,135	21,903	4	11	[illegible]
Massachusetts Memorial Hospitals[1-3-173]	Boston	M. S. Strong	371	1,055	1	1	[illegible]
Beth Israel Hospital[1-3-26]	Boston	B. Zonderman	660	1,474	1	1	[illegible]
Veterans Admin. Hospital[1-3-26]	Boston (Jamaica Plain)	E. H. Tomb	552	1,895	1	3	[illegible]

Numerical and other references will be found on pages 556 through 559.

16. OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
ersity Hospital [1-3-159]	Ann Arbor, Mich.	A. C. Furstenberg	670	8,322	3	12	154
per Hospital [1-3-199]	Detroit	A. E. Hammond	3,377	7	1	3	225
ry Ford Hospital [1-3]	Detroit	J. L. Dill	1,111	20,399	1	4	225
iring Hospital [1-3]	Detroit	J. E. Croushore	473	5,111	1	3	289
versity of Minnesota Hospitals [1-3-200]	Minneapolis	L. R. Boies	391	4,616	2	8	185
inneapolis General Hospital [1-3-26]	Minneapolis	B. Bofenkamp	292	3,554	..	1	209
ncker Hospital [1-3-26]	St. Paul	D. Kusske	344	3,145	1	1	185
erans Admin. Hospital [1-3-211]	Minneapolis	H. V. Hanson	174	88	2	2	...
yo Foundation [1-3]	Rochester, Minn.	H. L. Williams	1,453	22,221	2	7	175
ner G. Phillips Hospital [1-3]	St. Louis	A. J. Cone	203	2,095	2	6	201
Mary's Group of Hospitals [1-3-303]	St. Louis	B. J. McMahon	500	2,549	1	3	100
shington University Hospitals							
arnes Hospital [1-3]	St. Louis	T. E. Walsh	2,724	5	3	9	75
cMillan Hospital	St. Louis	.....	.....	.....	..	..	...
t. Louis City Hospital [1-3-26]	St. Louis	J. W. West	162	5,038	..	1	92
erans Admin. Hospital [1-3]	East Orange, N. J.	P. Lindenberg	316	242	1	3	...
wark Eye and Ear Infirmary [1-3]-Harrison S. Martland edical Center	Newark, N. J.	E. P. Cardwell	2,540	5,449	2	6	125
any Hospital [1-3]	Albany, N. Y.	B. M. Volk	739	3	1	3	160
ooklyn Eye and Ear Hospital [1-3]	Brooklyn, N. Y.	J. P. Baker	4,906	31,063	2	6	100
ngs County Hospital							
ivision II [1-3]	Brooklyn, N. Y.	I. J. Polisar	512	4,378	1	3	104
ng Island College Hospital [1-3]	Brooklyn, N. Y.	C. R. Weeth	604	1,330	1	3	156
ffalo General Hospital [1-3-239]	Buffalo	H. E. Bozer	789	871	1	3	175
nhurst General Hospital [1-3-17-296]	Elmhurst, N. Y.	C. A. Seelig	393	3,187	1	3	104
levue Hospital Center							
iv. IV-New York University Post-Graduate Medical School [-261]	New York City	J. F. Daly	2,144	12,196	4	12	70
arlem Eye and Ear Hospital [1-3]	New York City	E. Grabscheid	2,751	23,530	1	3	75
anhattan Eye, Ear and Throat Hospital [1-3]	New York City	W. B. Allan	6,474	48,145	3	9	50
ount Sinai Hospital [1-3]	New York City	J. L. Goldman	1,799	5,965	1	3	75
w York Eye and Ear Infirmary [1-3]	New York City	J. S. Hanley	.....	36,209	4	12	50
w York Hospital [1-3]	New York City	J. A. Moore	1,548	11,183	1	4	164
w York Polyclinic Medical School and Hospital [1-3]	New York City	W. W. Morrison	586	6,823	..	..	125
esbyterian Hospital [1]	New York City	E. P. Fowler	1,762	18,309	4	8	250
oosevelt Hospital [1-3]	New York City	R. C. Grove	621	4,187	1	3	133
. Luke's Hospital	New York City	D. R. McCuaig	815	9,434	1	3	100
terans Admin. Hospital [1-3]	New York City (Bronx)	F. Altmann	343	4	1	2	...
rong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	C. A. Heatly	1,027	.....	1	2	117
ate University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	A. Doust	296	3,176	1	3	233
orth Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	N. D. Fischer	86	1,492	1	2	156
uke University Affiliated Hospitals		W. W. Eagle	....	.....	..	..	...
Duke Hospital [1-3]	Durham, N. C.	.....	618	7,144	2	5	127
Veterans Admin. Hospital [1-3-26]	Durham, N. C.	.....	95	.....	..	..	...
cPherson Hospital [1-3]	Durham, N. C.	G. B. Ferguson	1,017	15,394	1	3	150
orth Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	J. A. Harrill	570	1,586	1	3	125
niversity of Cincinnati College of Medicine Hospital Group							
Cincinnati General Hospital [1-3]	Cincinnati	H. Goodyear	600	4,846	..	3	75
ity Hospital [1-3]	Cleveland	S. J. Missal	289	2,570	1	2	162.50
leveland Clinic Hospital [1-3]	Cleveland	H. E. Harris	886	16,580	2	6	175
t. Luke's Hospital [1-3]	Cleveland	F. W. Alexander	2,716	1,738	1	3	140
niversity Hospitals [1-3]	Cleveland	C. C. R. Jackson	1,274	.....	..	2	158.33
Veterans Admin. Hospital [1-3-26]	Cleveland	V. M. Jordan	462	412	1	3	...
hio State University Medical Center							
Children's Hospital [1-3]	Columbus, Ohio	E. W. Harris	1,325	.....	..	..	...
University Hospital [1-3]	Columbus, Ohio	E. W. Harris	517	3,998	..	6	202
niversity of Oklahoma Hospitals [1-3]	Oklahoma City	O. A. Watson	174	2,392	1	1	...
niversity of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	G. L. Boyden	426	3,243	1	3	100
Veterans Admin. Hospital [1-3-26]	Portland, Ore.	G. L. Boyden	191	1,098	..	1	...
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	F. W. Davison	1,008	9,663	1	3	175
Graduate Hospital of The University of Pennsylvania [1-3]	Philadelphia	B. Shuster	1,086	2,061	2	4	100
Hospital of The University of Pennsylvania [1-3]	Philadelphia	H. Schenck	1,148	3,533	2	6	...
Jefferson Medical College Hospital [1-3]	Philadelphia	F. Harbert	1,393	3,944	2	3	100
Temple University Hospital [1-3-336]	Philadelphia	D. Meyers	1,995	2,119	2	6	...
Mercy Hospital [1-3]	Pittsburgh	J. A. Perrone	2,161	2	1	3	235
Health Center Hospitals of The University of Pittsburgh School of Medicine							
Eye and Ear Hospital	Pittsburgh	K. M. Day-T. B. McCullough	4,605	5,617	2	4	125
Veterans Admin. Hospital [1-3]	Pittsburgh	S. L. Kyler	712	13	1	3	...
Rhode Island Hospital [1-3]	Providence, R. I.	R. W. Pearson	1,496	2,602	1	2	100
Medical College of South Carolina Teaching Hospitals [1]	Charleston, S. C.	R. M. Hope	195	1,054	2	3	137
City of Memphis Hospitals [1-3-394]	Memphis, Tenn.	S. Sanders	434	5,877	1	3	125
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	T. C. Maguda	Incl. in Ophthalmology		1	1	...
Veterans Admin. Hospital [1-3-349]	Dallas, Texas	D. A. Corgill	432	9	1	2	...
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	J. M. Robison, Sr.	396	4,064	2	4	160
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital [1-3]	Houston, Texas	H. H. Harris	271	6,270	1	3	75
Methodist Hospital [1-3]	Houston, Texas	J. C. Dickson	1,163	1	1	1	100
Veterans Admin. Hospital [1-3-362]	Houston, Texas	H. H. Harris	333	3	1	3	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	G. S. Fitz-Hugh	1,107	5,024	1	3	50
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	P. N. Pastore	1,257	4,938	2	4	75
*Gill Memorial Eye, Ear, and Throat Hospital	Roanoke, Va.	E. G. Gill	Incl. in Ophthalmology		..	..	350
University Hospitals [1-3]	Madison, Wis.	C. Taborsky	565	.....	1	3	100
Veterans Admin. Hospital [1-3]	Milwaukee, (Wood), Wis.	R. H. Lehman	397	2,454	1	1	...

*Combined 4-year program Ophthalmology-Otolaryngology

17. PATHOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Pathology as offering acceptable training in the specialty. Services which have been evaluated on the basis of training in the two categories, pathologic anatomy and clinical pathology, are designated as follows: a—pathologic anatomy only; c—clinical pathology only; p—pathologic anatomy and clinical pathology.

Hospitals, 633; Assistant Residencies and Residencies, 2415

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning [illegible]
UNITED STATES AIR FORCE										
U. S. Air Force Hospital [1]	San Antonio, Texas	R. C. Schaffer	217	298,102	.....	.....	1	2	2p	..
UNITED STATES ARMY										
Letterman Army Hospital [1-3]	San Francisco	N. Irey	266	607,679	7,038	6,805	2	8	4p	..
Fitzsimons Army Hospital [1]	Denver	H. A. VanAuken	276	411,177	5,055	5,055	2	8	4p	..
Armed Forces Institute of Pathology [1-3]	Washington, D. C.	E. W. Goodpasture	11,327	......	28,809	28,809	..	20	1p	...
Army Medical Center [1-3]	Washington, D. C.	C. J. Lind, Jr.	310	854,425	4,919	4,738	2	8	4p	..
Brooke Army Hospital [1-3]	San Antonio, Texas	G. J. Matt	396	912,598	5,871	5,871	2	8	4p	...
Tripler Army Hospital [1]	Honolulu, T. H.	H. E. Shuey	202	569,801	6,201	6,201	1	4	4p	..
UNITED STATES NAVY										
U. S. Naval Hospital [1-3]	Oakland, Calif.	H. V. O'Connell	163	162,985	8,449	7,753	1	4	4p	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. S. Shaver	437	841,388	7,410	7,410	2	8	4p	.
U. S. Naval Hospital [1-3]	Bethesda, Md.	V. E. Martens	257	345,710	22,177	22,177	2	8	4p	.
U. S. Naval Hospital [1]	St. Albans, N. Y.	S. S. Sarkisian	119	331,100	8,098	8,098	1	4	3p	..
U. S. Naval Hospital [1]	Philadelphia	B. H. Smith, Jr.	151	265,921	4,325	4,325	1	4	4p	.
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital [1-3]	New Orleans	A. L. Steplock	53	158,986	2,944	2,671	1	2	3p	.
U. S. Public Health Service Hospital [1-3]	Baltimore	J. A. Smith	80	156,840	2,940	2,814	1	4	4p	...
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	H. Stewart-G. Williams	187	229,969	1,796	1,796	4	11	4p	...
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y.	T. L. Perrin	121	210,239	4,041	3,534	1	4	4p	...
U. S. Public Health Service Hospital [1-3]	Seattle	C. S. Powell	140	100,905	3,513	3,065	1	4	2p	...
NONFEDERAL AND VETERANS ADMINISTRATION										
Birmingham Baptist Hospitals	Birmingham, Ala.	A. E. Casey	200	316,105	9,696	9,696	2	6	4p	2
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	J. Cunningham-B. Bishop	60	115,093	2,400	2,400	2	4	4p	2
University of Alabama Medical Center										
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	J. F. A. McManus	325	271,786	7,433	6,419	2	9	4p	1
Veterans Admin. Hospital [1]	Birmingham, Ala.	B. M. Hathaway	183	224,645	1,741	1,741	1	2	3a	..
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	W. F. Scott, Jr.	97	141,027	2,899	2,625	1	1	1a	2
Mobile County Hospital [1-3]	Mobile, Ala.	E. B. Wert	285	104,544	3,854	2,434	2	2	3a	3
Good Samaritan Hospital [1]	Phoenix, Ariz.	J. D. Barger	135	146,524	7,032	4,576	1	1	2p	2
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	M. Rosenthal	286	135,827	2,049	1,805	1	2	2a	3
St. Joseph's Hospital [1-3]	Phoenix, Ariz.	L. A. Stapley	223	185,992	6,731	5,694	1	3	3p	2
Arkansas Baptist Hospital [1]	Little Rock, Ark.	E. L. Wilbur	112	135,438	5,826	4,169	3	3	2a	2
University Hospital [1]	Little Rock, Ark.	H. Schlumberger	205	167,722	7,446	7,446	3	6	3a	15
Veterans Admin. Hospital [1-3]	Little Rock, Ark.	C. F. Shukers	203	195,911	1,976	1,976	1	1	1a	...
Kern County General Hospital [1]	Bakersfield, Calif.	R. W. Huntington, Jr.	361	186,214	2,659	2,584	1	3	4p	3
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. R. Fishback	165	81,123	3,717	3,450	1	3	4p	1
St. Joseph Hospital [1-3]	Burbank, Calif.	R. Straus	130	133,384	5,093	3,586	1	2	4p	2
City of Hope Medical Center [1-3]	Duarte, Calif.	G. D. Amromin	202	142,591	3,475	3,475	1	2	1a	4
San Joaquin General Hospital [1]	French Camp, Calif.	H. J. Schneider	337	141,911	2,034	2,034	1	2	3a	2
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	A. F. Brown	253	110,825	5,149	3,916	1	4	4p	..
Loma Linda Sanitarium and Hospital [1-3]	Loma Linda, Calif.	O. B. Pratt	196	92,073	3,257	3,200	3	9	4p	2
St. Mary's Hospital [1-3]	Long Beach, Calif.	T. Kiddie	131	173,217	7,621	4,431	2	6	2p	3
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	J. A. Tata	184	175,053	7,006	5,659	1	3	4p	2
Veterans Admin. Hospital [1 3-58]	Long Beach, Calif.	B. E. Konwaler	573	477,682	4,181	4,181	2	6	4p	..
California Hospital [1-3]	Los Angeles	A. Wright	177	160,893	5,338	4,238	1	3	3a	17
Cedars of Lebanon Hospital [1-3]	Los Angeles	N. B. Friedman	309	174,054	7,648	7,509	2	5	4p	2
Children's Hospital [1]	Los Angeles	R. S. Cleland	232	135,422	808	808	2	2	1a	15
Hospital of The Good Samaritan [3]	Los Angeles	L. J. Tragerman	169	138,013	6,495	4,572	2	2	4p	2
Los Angeles County Hospital [1]	Los Angeles	E. Butt	2,281	847,025	17,957	14,869	4	16	4p	2
Queen of Angels Hospital [1-3]	Los Angeles	J. Cremin	265	1,074,931	5,620	4,797	..	1	4p	2
St. Vincent's Hospital [3]	Los Angeles	J. E. Kahler	38	133,385	5,160	4,005	1	1	2p	2
University of California Hospital [1-3]	Los Angeles	S. C. Madden	366	103,084	2,643	2,643	2	5	4p	1
Veterans Admin. Hospital [1-3]	Los Angeles	B. Fishkin	796	612,196	5,960	5,960	6	14	4p	...
White Memorial Hospital [1-3]	Los Angeles	O. B. Pratt	187	265,899	4,517	2,925	2	4	4p	15
Highland-Alameda County Hospital [1]	Oakland, Calif.	R. J. Parsons	331	139,709	5,911	3,754	1	4	3a	2
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	M. Friedman	388	286,147	13,407	11,036	2	5	4p	2
Samuel Merritt Hospital [1]	Oakland, Calif.	C. P. Baker	167	153,453	5,731	4,726	1	4	4p	1
Veterans Admin. Hospital [1-3]	Oakland, Calif.	B. Gerstl	334	168,674	2,613	2,613	1	3	4p	...
Collis P. and Howard Huntington Memorial Hospital [1-3]	Pasadena, Calif.	D. S. Shillam-R. C. Lewis	200	213,465	10,479	8,681	1	4	4p	2
Sequoia Hospital	Redwood City, Calif.	....	...	......	.....	.....	..	..	2p	..
Sacramento County Hospital [1]	Sacramento, Calif.	F. S. Preuss	568	386,870	2,780	2,367	1	4	4p	5
San Bernardino County Charity Hospital	San Bernardino, Calif.	J. D. Kirshbaum	348	125,180	6,630	5,182	2	2	2a	2
Mercy Hospital [1-3]	San Diego, Calif.	D. A. DeSanto	216	165,314	7,215	6,404	1	4	4p	[illegible]
San Diego County General Hospital [1-3]	San Diego, Calif.	L. A. Palmer	291	51,982	2,095	1,697	1	4	4p	15
Franklin Hospital [1-3]	San Francisco	J. L. Carr-J. S. Wellington	45	37,337	3,298	2,053	1	1	2p	2
French Hospital [1-3]	San Francisco	G. A. Watson	99	79,257	2,940	2,231	1	1	1a	15
Kaiser Foundation Hospital [1-3]	San Francisco	M. Friedman-M. L. Bassis	179	241,030	6,797	5,777	2	2	2a	2
Mount Zion Hospital [1-3]	San Francisco	G. R. Biskind	223	135,427	4,497	3,733	1	4	4p	15
St. Francis Memorial Hospital [1-3]	San Francisco	J. L. Zundell	142	82,537	5,721	3,942	1	2	4p	3
St. Luke's Hospital [1-3]	San Francisco	M. Black	122	101,438	4,589	2,843	1	2	2p	2
St. Mary's Hospital [1-3]	San Francisco	A. Moody	161	160,449	6,082	4,325	1	4	4p	14
San Francisco Hospital										
Stanford University Service [1-3]	San Francisco	A. J. Cox	239	47,000	1,231	1,231	2	4	3a	15
Universi[illegible] [1-3]	San Francisco	J. S. Wellington	280	47,000	1,500	1,500	2	3	3a	1
Stanford [illegible]ital [1-3]	San Francisco	A. J. Cox	288	93,844	3,395	3,395	1	4	4p	-
University [illegible]	San Francisco	H. D. Moon	251	111,952	5,186	5,186	2	4	4p	2
Veterans [illegible]	San Francisco	J. B. Frerichs-T. Feichtmeir	178	170,881	2,965	2,965	1	4	3p	.
O'Connor Hospital	San Jose, Calif.	L. R. Grams	168	163,262	6,220	4,074	..	3	4p	.
Santa Clara County Hospital [1-3]	San Jose, Calif.	D. L. Alcott	345	283,289	2,373	2,373	1	4	4p	3
Community Hospital of San Mateo County [1]	San Mateo, Calif.	R. O. Holmes	151	68,835	1,274	1,144	1	1	2a	4
Santa Barbara Cottage Hospital [1-3]	Santa Barbara, Calif.	E. L. Benjamin	112	98,791	4,663	4,167	1	2	3a	4
St. John's Hospital [1]	Santa Monica, Calif.	G. J. Hummer	123	186,890	7,463	5,678	4	4	2a	2

Numerical and other references will be found on pages 556 through 559.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered [x]	Total Residencies Offered [x]	Length of Approved Program (Years)	Beginning Stipend (Month)
rbor General Hospital [1-63]	Torrance, Calif.	S. S. Madden	487	310,696	3,688	3,619	2	8	4[p]	246
ekner-Penrose Hospital [1-3]	Colorado Springs, Colo.	M. Berthrong	116	96,623	3,268	2,596	1	2	2[a]	200
ildren's Hospital [1-3]	Denver	E. C. Beatty, Jr.	140	134,428	3,591	698	1	2	2[p]	200
eral Rose Memorial Hospital	Denver	K. T. Neubuerger	141	108,244	5,078	3,938	2	4	2[a]	250
rey Hospital [1-3]	Denver	E. Hildebrand	132	55,215	4,884	4,573	2	2	2[p]	250
rter Sanitarium and Hospital [1-3]	Denver	W. T. Wikle-J. Wood.	108	69,275	4,070	3,101	1	2	1[a]	150
esbyterian Hospital [1-3]	Denver	A. E. Lubchenco	133	57,328	4,073	3,248	1	2	2[a]	225
Anthony Hospital	Denver	S. K. Kurland	178	78,518	3,789	1,999	2	2	2[a]	175
Joseph's Hospital	Denver	S. M. P. Ashe	227	233,111	7,833	6,746	1	4	4[p]	200
Luke's Hospital [1-84]	Denver	W. C. Black	252	167,327	10,631	7,711	1	4	4[p]	225
iversity of Colorado Medical Center Colorado General Hospital [1-3]	Denver	J. B. McNaught- J. H. Holmes	364	202,156	8,611	8,598	4	17	4[p]	250
Denver General Hospital [1-3]	Denver	W. White	399	327,182	9,265	9,265	..	..	4[p]	250
terans Admin. Hospital [1-3-65]	Denver	E. H. Valentine	246	176,574	2,352	2,250	1	3	4[p]	...
eld County General Hospital	Greeley, Colo.	L. A. Kidder	159	63,602	2,584	1,828	1	2	2[a]	300
lorado State Hospital [91]	Pueblo, Colo.	M. Gallavan	303	84,207	6,289	5,089	2	8	4[p]	415
idgeport Hospital [1-3]	Bridgeport, Conn.	I. B. Akerson	214	150,516	4,872	4,275	1	2	4[p]	240
Vincent's Hospital [1-3]	Bridgeport, Conn.	A. Ginzler	209	191,743	4,763	4,042	1	2	3[a]	300
anbury Hospital [1-3]	Danbury, Conn.	E. Woll	109	82,472	2,374	1,909	1	1	1[a]	200
reenwich Hospital [1-3]	Greenwich, Conn.	J. S. Morris	142	83,232	3,879	3,390	1	2	2[p]	150
artford Hospital [1-3-94]	Hartford, Conn.	R. E. Kendall	1,327	297,470	11,360	10,832	1	4	4[p]	100
Francis Hospital [1-3]	Hartford, Conn.	L. P. Hastings	250	228,476	6,482	5,834	2	5	4[p]	125
eriden Hospital [1-3]	Meriden, Conn.	R. Katzenstein	104	121,743	3,383	437	2	2	2[a]	100
iddlesex Hospital [1-3]	Middletown, Conn.	C. E. McLeod	173	81,650	3,239	2,045	2	4	2[p]	150
ew Britain General Hospital [1-3]	New Britain, Conn.	P. D. Rosahn	225	175,085	4,748	4,625	1	4	4[p]	210
race-New Haven Community Hospital [1-3]	New Haven, Conn.	A. A. Liebow	564	252,429	9,021	9,021	1	2	4[p]	50
ospital of St. Raphael [3]	New Haven, Conn.	R. Nesbit	175	133,144	4,148	4,148	1	4	4[p]	150
eterans Admin. Hospital [1-3]	Newington, Conn.	R. G. Olivetti	84	123,628	1,210	1,158	2	2	2[p]	...
orwalk Hospital [1-3]	Norwalk, Conn.	R. N. Barnett	196	127,408	4,116	3,053	2	2	4[p]	195
tamford Hospital [1-3]	Stamford, Conn.	E. S. Breakell	188	151,433	6,524	2,973	1	3	4[p]	150
t. Mary's Hospital	Waterbury, Conn.	M. E. Cox	149	2,150	5,887	3,737	1	4	4[p]	225
aterbury Hospital [1]	Waterbury, Conn.	J. O. Collins	232	155,338	4,818	4,818	1	4	4[p]	225
eterans Admin. Hospital [1-3-102]	West Haven, Conn.	R. Yesner	122	192,940	1,761	1,600	2	2	2[p]	...
elaware Hospital [1-3]	Wilmington, Del.	J. W. Howard	322	243,404	5,258	5,040	1	4	4[p]	220
emorial Hospital [1-3]	Wilmington, Del.	J. W. Abbiss	224	118,686	5,042	5,042	1	4	4[p]	225
ilmington General Hospital [1-3]	Wilmington, Del.	J. V. Casella	94	109,771	2,114	2,114	1	1	1[p]	260
hildren's Hospital [1-3]	Washington, D. C.	E. C. Rice	111	136,235	620	618	2	2	2[p]	100
istrict of Columbia General Hospital [1-3]	Washington, D. C.	D. Weiss	776	253,325	4,095	4,095	2	6	4[p]	233
octors Hospital [1-3]	Washington, D. C.	O. B. Hunter, Jr.	151	208,108	6,827	6,090	1	2	4[p]	150
eorgetown University Hospital [1-3]	Washington, D. C.	C. F. Geschickter	248	274,878	5,135	3,221	6	12	4[p]	175
eorge Washington University Hospital [1-3]	Washington, D. C.	T. M. Perry	299	255,074	7,161	7,125	2	5	4[p]	150
Providence Hospital [1-3]	Washington, D. C.	K. McCoy	201	143,523	5,449	5,405	1	4	4[p]	350
Sibley Memorial Hospital [1-3]	Washington, D. C.	O. B. Hunter	168	101,647	4,930	4,481	1	2	4[p]	...
Veterans Admin. Hospital [1-3-107]	Washington, D. C.	J. S. Howe	171	166,000	1,800	1,800	1	4	4[p]	...
Washington Hospital Center Central Dispensary and Emergency Hospital [1-3]	Washington, D. C.	F. W. Konzelmann	134	137,602	4,029	3,623	1	4	4[p]	225
Garfield Memorial Hospital [1-3]	Washington, D. C.	E. C. Rice	239	156,333	4,836	4,082	..	..	4[p]	215
Veterans Admin. Hospital [1]	Coral Gables, Fla.	R. V. Thomson	396	142,798	2,329	2,329	2	3	4[p]	...
Baptist Memorial Hospital [1-3]	Jacksonville, Fla.	A. G. Foraker	88	76,952	3,217	2,155	1	2	2[p]	325
Duval Medical Center [1-3]	Jacksonville, Fla.	J. W. Eversole	248	160,802	3,009	2,709	1	2	2[a]	150
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	C. M. Whorton	139	117,208	4,885	3,511	1	4	4[p]	225
Jackson Memorial Hospital [1-3]	Miami, Fla.	W. A. D. Anderson	793	464,317	11,018	9,578	4	15	4[p]	75
Mount Sinai Hospital of Greater Miami [1-3]	Miami Beach, Fla.	M. Lev	271	134,843	2,858	2,547	1	4	4[p]	250
Orange Memorial Hospital [1-3]	Orlando, Fla.	W. A. Derrick	198	109,451	6,618	5,961	1	3	3[a]	325
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	D. Ayer	193	113,450	6,941	5,793	2	6	4[p]	285
Georgia Baptist Hospital [1-3]	Atlanta, Ga.	....	205	168,956	6,880	6,742	1	2	2[p]	305
Grady Memorial Hospital [1-3]	Atlanta, Ga.	T. D. Raaen	562	276,012	7,233	7,233	5	10	4[p]	100
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	J. T. Godwin	185	145,845	6,042	6,027	1	4	4[p]	270
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	J. Mendeloff	152	192,257	1,641	1,641	1	1	3[p]	...
University Hospital [1]	Augusta, Ga.	M. Ihnen	153	169,000	4,842	4,558	2	6	3[a]	200
Emory University Hospital [1-3]	Emory University, Ga.	W. H. Sheldon	274	6,549	....	....	2	4	4[p]	235
Memorial Hospital of Chatham County [1-3]	Savannah, Ga.	L. Howard, Jr.	136	40,452	1,203	921	1	1	1[a]	350
Alexian Brothers Hospital [3]	Chicago	J. P. Simonds	139	70,000	1,628	1,106	1	1	1[p]	200
American Hospital [1-3]	Chicago	W. F. Eisenstaedt- F. Bicknell	94	59,930	1,587	1,462	2	2	1[p]	65
Augustana Hospital [1-3]	Chicago	G. Milles	165	102,352	3,007	2,632	1	3	4[p]	150
Children's Memorial Hospital [1-3]	Chicago	J. Boggs	127	92,952	1,057	1,057	2	2	1[p]	75
Cook County Hospital [1-3]	Chicago	P. B. Szanto	1,634	664,323	12,339	11,716	4	10	4[p]	100
Edgewater Hospital	Chicago	E. P. Leroy	87	96,328	4,456	3,513	1	2	2[p]	200
Englewood Hospital [3]	Chicago	G. T. Rich	95	69,247	3,293	1,682	1	1	1[a]	200
Grant Hospital [1]	Chicago	J. C. Sherrick	139	94,599	3,518	2,563	1	2	3[p]	225
Illinois Masonic Hospital [1-3]	Chicago	L. S. King	213	175,364	3,300	3,019	1	1	4[p]	115
Mercy Hospital [1-3]	Chicago	J. H. Peers	160	110,953	4,120	3,199	1	4	4[p]	200
Michael Reese Hospital	Chicago	O. Saphir	466	589,754	5,757	5,757	2	6	4[p]	150
Mount Sinai Hospital [1-3]	Chicago	I. Davidsohn- H. Rappaport	290	385,372	8,775	8,221	2	8	4[p]	125
Northwestern University Medical Center Chicago Wesley Memorial Hospital [1-3]	Chicago	T. C. Laipply	246	273,387	6,147	6,147	1	4	4[p]	125
Passavant Memorial Hospital [1-3]	Chicago	W. R. Wartman- M. C. Wheelock	124	144,533	3,400	3,400	2	4	4[p]	50
Veterans Admin. Research Hospital [1]	Chicago	E. E. Mandel	326	151,089	1,694	1,694	2	3	4[p]	...
Evanston Hospital [1-3]	Evanston, Ill.	H. A. Teloh	268	196,693	3,938	3,938	1	3	4[p]	225
Norwegian American Hospital [1-3]	Chicago	A. Learner	69	84,536	3,419	1,973	1	1	1[p]	225
Presbyterian Hospital [1-3]	Chicago	G. M. Hass	235	267,661	5,411	5,411	2	5	3[a]	125
Ravenswood Hospital	Chicago	P. W. Graff	187	118,500	2,720	2,675	2	2	2[p]	100
St. Anne's Hospital [1]	Chicago	J. B. Hartney	152	172,105	3,154	....	1	4	4[p]	250
St. Joseph's Hospital [1-3]	Chicago	G. F. Stevenson	111	93,210	3,340	2,950	1	4	2[p]	300
St. Luke's Hospital [1-3]	Chicago	E. F. Hirsch	311	295,851	7,336	5,689	1	4	4[p]	125
St. Mary of Nazareth Hospital [1-3]	Chicago	M. C. Godwin	113	186,336	3,410	2,384	1	2	1[a]	150
University of Chicago Clinics [1-3]	Chicago	P. R. Cannon	440	364,868	6,401	5,916	1	4	4[p]	200
University of Illinois Research and Educational Hospitals [1-3]	Chicago	C. A. Krakower	379	593,819	8,022	8,022	2	7	4[p]	200
Veterans Admin. West Side Hospital [1-3]	Chicago	B. Chomet	205	290,288	2,049	1,904	2	4	4[p]	...
St. Francis Hospital [1-3]	Evanston, Ill.	J. W. Henry	258	242,410	6,338	5,471	1	4	4[p]	175
Veterans Admin. Hospital [1]	Hines, Ill.	M. Rubnitz	529	669,956	5,263	5,263	1	2	4[p]	...
Methodist Hospital of Central Illinois [3]	Peoria, Ill.	H. I. Brown	146	104,571	6,346	4,645	2	2	4[p]	200
St. Francis Hospital [1-3]	Peoria, Ill.	J. R. Kraft-E. P. Elzi.	290	159,452	6,277	4,575	1	4	4[p]	225
Rockford Memorial Hospital [1]	Rockford, Ill.	M. O. Alexander	188	137,673	3,369	2,811	1	4	4[p]	200
St. Anthony Hospital [1-3]	Rockford, Ill.	A. R. K. Matthews	215	93,291	3,938	3,767	1	1	4[p]	200
St. Joseph's Hospital [1-3]	Fort Wayne, Ind.	L. A. Schneider	235	119,676	5,436	4,023	2	2	4[p]	250
Methodist Hospital [1-3]	Gary, Ind.	R. A. Burger	186	112,619	3,462	3,198	1	3	4[p]	300

Numerical and other references will be found on pages 556 through 559.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)
Indianapolis General Hospital[1]	Indianapolis	P. V. Evans	422	150,164	2,934	2,898	1	4	4[p]
Indiana University Medical Center									
Indiana University Medical Center Hospital[1]	Indianapolis	E. B. Smith	424	45,795	4,380	4,352	4	10	4[p]
Veterans Admin. Hospital[1-3]	Indianapolis	D. Rosenbaum	263	174,705	1,535	1,535	..	1	3[p]
Methodist Hospital[1]	Indianapolis	L. H. Hoyt	290	595,266	10,480	9,324	2	5	4[p]
St. Vincent's Hospital[1-3]	Indianapolis	L. N. Foster	148	197,896	6,736	3,854	2	2	4[p]
St. Elizabeth Hospital[1-3]	Lafayette, Ind.	G. B. Stansell	111	139,762	8,338	3,995	1	2	2[a]
Ball Memorial Hospital[1]	Muncie, Ind.	L. G. Montgomery	234	194,085	....	8,683	1	3	4[p]
South Bend Medical Foundation Hospitals	South Bend, Ind.	C. S. Culbertson	394	308,000	13,419	9,626	2	6	4[p]
Elkhart General Hospital	Elkhart, Ind.								
St. Joseph Hospital	Mishawaka, Ind.								
Memorial Hospital	South Bend, Ind.								
St. Joseph Hospital	South Bend, Ind.								
St. Luke's Methodist Hospital[1-3]	Cedar Rapids, Iowa	F. C. Tucker	141	147,644	4,350	2,848	1	3	3[p]
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	J. W. Green, Jr.	216	193,976	5,609	3,775	1	3	4[p]
Mercy Hospital[1-7]	Des Moines, Iowa	F. C. Coleman	196	142,539	3,958	3,958	1	4	4[p]
Veterans Admin. Hospital[1-3-130]	Des Moines, Iowa	T. E. Corcoran	153	187,561	2,535	2,535	1	4	4[p]
State University of Iowa Hospitals[1-3]	Iowa City	E. D. Warner	552	156,112	6,363	6,363	2	8	3[a]
Veterans Admin. Hospital[1-3]	Iowa City	K. R. Cross	160	169,361	2,260	2,230	1	4	4[p]
University of Kansas Medical Center[1-3]	Kansas City, Kan.	R. Stowell	415	448,034	9,646	8,686	5	16	4[p]
Veterans Admin. Hospital[1]	Kansas City, Mo.	J. A. Turner	214	277,426	3,146	2,831	..	..	..
St. Francis Hospital[1-3]	Wichita, Kan.	W. P. Callahan, Jr.	367	467,311	11,013	11,013	1	4	4[p]
Wesley Hospital[1-3]	Wichita, Kan.	B. E. Stofer	119	115,055	5,657	4,635	1	1	1[a]
Wichita-St. Joseph Hospital[1-3]	Wichita, Kan.	W. J. Reals	132	110,962	6,571	5,976	2	2	2[p]
St. Elizabeth Hospital[1-3]	Covington, Ky.	R. J. Ritterhoff	201	106,380	3,301	2,400	1	2	2[a]
Children's Hospital[1-3]	Louisville, Ky.	I. Diamond	130	34,468	898	595	..	2	1[p]
Louisville General Hospital[1-3]	Louisville, Ky.	W. M. Christopherson	347	203,365	3,452	3,384	2	8	4[p]
Veterans Admin. Hospital[1-3-143]	Louisville, Ky.	H. Gordon	207	138,496	2,383	2,359	1	8	8[p]
Charity Hospital of Louisiana[1]	New Orleans	E. Moss	1,817	881,081	19,389	19,389	3	12	4[p]
Hotel Dieu[1]	New Orleans	R. M. Hartwell	98	183,690	7,531	7,531	2	4	3[p]
Ochsner Foundation Hospital[1]	New Orleans	G. M. Carrera	125	143,013	6,455	6,455	2	3	2[a]
Southern Baptist Hospital[1-3]	New Orleans	E. H. Lawson	161	435,769	12,817	12,817	1	4	4[p]
Touro Infirmary[1]	New Orleans	A. Hertzog	284	397,971	6,880	6,536	1	3	4[p]
Veterans Admin. Hospital[1-7]	New Orleans	J. Ziskind	241	167,075	2,211	2,200	1	2	3[p]
Confederate Memorial Medical Center[1]	Shreveport, La.	W. R. Mathews	354	277,969	6,403	6,403	1	4	4[p]
Eastern Maine General Hospital[1-7]	Bangor, Maine	R. C. Wadsworth	162	148,025	6,718	5,910	1	2	4[p]
Central Maine General Hospital[1]	Lewiston, Maine	C. F. Branch	227	89,481	5,216	5,216	..	1	4[p]
Maine Medical Center[1]	Portland, Maine	J. E. Porter	170	167,133	5,052	4,169	1	4	4[p]
Baltimore City Hospital[1-3]	Baltimore	A. D. Pollack	478	138,718	2,046	2,046	2	5	3[p]
Franklin Square Hospital	Baltimore	P. F. Guerin	129	69,568	2,479	2,467	1	2	2[a]
Johns Hopkins Hospital[1-3-43]	Baltimore	A. R. Rich	612	295,323	6,042	6,042	2	5	2[a]
Lutheran Hospital[1-3]	Baltimore	J. A. Wagner	106	121,640	2,440	2,440	1	1	1[a]
Maryland General Hospital[1-3] and Hospital for Women[1-3]	Baltimore	R. S. Fisher- W. V. Lovitt	232	152,804	5,892	5,885	5	5	1[a]
Mercy Hospital[1-3]	Baltimore	C. G. Warner	179	506,947	5,493	3,466	..	1	2[a]
Sinai Hospital[1-3]	Baltimore	T. Weinberg	195	260,605	11,014	11,014	2	5	4[p]
Union Memorial Hospital[1]	Baltimore	W. C. Merkel	209	139,898	5,493	5,435	1	4	4[p]
University Hospital[1-3]	Baltimore	J. A. Wagner	407	435,195	6,552	5,373	1	3	4[p]
Prince George's General Hospital[1-3]	Cheverly, Md.	J. C. Burns	104	100,431	2,914	2,688	2	2	2[p]
Beverly Hospital[1-3]	Beverly, Mass.	R. Fienberg	139	91,908	2,061	2,061	1	2	3[p]
Beth Israel Hospital[1-3]	Boston	D. Freiman	190	190,621	4,336	4,240	2	5	3[a]
Boston City Hospital[1-3]	Boston	G. K. Mallory	1,114	52,489	7,232	7,232	3	12	4[p]
Boston Lying-In Hospital[1-27-164]	Boston	K. Benirschke	134	70,271	2,596	2,596	1	2	1[a]
Carney Hospital[3]	Boston	M. W. Shapiro	124	152,856	5,211	4,823	1	3	2[a]
Children's Medical Center[1-3]	Boston	S. Farber	274	......	1,897	1,897	..	3	1[a]
Faulkner Hospital[1-3]	Boston	P. M. LeCompte	124	57,859	2,640	2,200	1	1	2[p]
Lemuel Shattuck Hospital[1-3]	Boston	H. J. MacMillan	75	48,955	496	496	1	2	1[a]
Massachusetts General Hospital[1-3]	Boston	B. Castleman	665	11,985	11,084	11,084	4	10	4[p]
Massachusetts Memorial Hospitals[1-3]	Boston	S. C. Sommers	116	152,156	4,524	4,324	2	4	4[p]
New England Center Hospital[1-3]	Boston	H. E. MacMahon	160	195,033	3,254	3,150	..	4	2[a]
New England Deaconess Hospital[1-3]	Boston	S. Warren	255	176,629	7,599	7,599	2	10	4[p]
Peter Bent Brigham Hospital[1-3]	Boston	G. J. Dammin	290	155,960	2,935	2,935	..	6	4[p]
St. Elizabeth's Hospital[1-3]	Boston	J. H. Graham	143	131,536	6,601	4,997	1	3	3[a]
Veterans Admin. Hospital[1-7]	[illegible] Plain)	J. D. Houghton	376	407,487	3,292	3,284	2	4	3[p]
Cambridge City Hospital[1-3]	[illegible] Mass.	C. W. Jones	183	102,507	2,412	2,400	1	2	2[a]
Mount Auburn Hospital[1-3]	Cambridge, Mass.	H. E. McMahon	166	108,840	3,447	3,135	1	2	2[a]
Truesdale Hospital[1-3-185]	Fall River, Mass.	W. Freeman	157	220,556	5,722	5,162	1	1	1[a]
Burbank Hospital[1]	Fitchburg, Mass.	H. J. Sparling	128	87,272	3,250	3,250	1	1	1[p]
Lawrence General Hospital[1-3]	Lawrence, Mass.	L. S. Jolliffe	181	101,973	1,776	1,776	1	4	3[p]
Lowell General Hospital[1-3]	Lowell, Mass.	J. Y. Rodger	111	119,347	1,803	1,751	1	1	1[a]
Lynn Hospital[1-3]	Lynn, Mass.	H. Olken	126	124,171	4,320	4,320	2	2	1[p]
Malden Hospital[1-7]	Malden, Mass.	M. V. MacKenzie	86	66,700	2,691	2,691	1	1	2[p]
St. Luke's Hospital[1-3]	New Bedford, Mass.	V. Klarsis	135	206,958	4,628	3,574	1	1	2[a]
Newton-Wellesley Hospital[1-3]	Newton-Lower Falls, Mass.	D. Skinner	111	129,405	5,610	3,661	1	4	2[p]
Quincy City Hospital[1-3]	Quincy, Mass.	R. B. Street, Jr.	156	107,484	2,771	2,771	1	3	4[p]
Salem Hospital[1]	Salem, Mass.	D. A. Nickerson	272	107,870	8,018	8,018	1	4	4[p]
Springfield Hospital[1-3]	Springfield, Mass.	W. Kaufmann	248	148,765	6,090	6,090	1	4	3[a]
Pondville Hospital[1]	Walpole, Mass.	S. Warren	138	48,628	1,663	1,663	..	2	1[p]
Veterans Admin. Hospital[1-3]	West Roxbury, Mass.	I. Gore	94	125,232	1,163	1,138	1	2	2[p]
Memorial Hospital[1-3]	Worcester, Mass.	R. C. Sniffen	162	110,644	3,444	2,815	1	1	1[a]
St. Vincent Hospital[1-3]	Worcester, Mass.	W. Casale	180	178,602	3,866	3,640	2	2	1[a]
Worcester City Hospital[1-8]	Worcester, Mass.	W. MacGillivray	280	97,335	3,158	3,158	..	2	3[p]
University Hospital[1-3-189]	Ann Arbor, Mich.	J. A. French	567	261,723	9,823	9,823	6	24	4[p]
Leila Y. Post Montgomery Hospital[1-3]	Battle Creek, Mich.	A. A. Humphrey	145	75,473	2,200	2,057	1	1	1[a]
Oakwood Hospital[1-3]	Dearborn, Mich.	R. L. Mainwaring	164	158,013	4,974	4,843	1	4	4[p]
Children's Hospital[1-3]	Detroit	W. W. Zuelzer	252	130,734	469	469	2	2	1[a]
Grace Hospital[1-3]	Detroit	C. I. Owen	341	313,704	13,158	13,158	1	4	4[p]
Harper Hospital[1-3]	Detroit	P. F. Morse	308	339,958	6,794	6,794	1	3	4[p]
Henry Ford Hospital[1-3]	Detroit	R. C. Horn, Jr.	588	566,308	11,675	11,675	4	16	4[p]
Mount Carmel Mercy Hospital[1-3]	Detroit	L. W. Gardner	360	255,224	7,512	7,384	2	6	4[p]
Providence Hospital[1]	Detroit	D. H. Kaump	256	170,127	4,962	4,962	1	4	
Wayne University Affiliated Hospitals									
Veterans Admin. Hospital[1-3]	Dearborn	M. W. Wilson	308	378,130	2,677	2,677	2	6	4[p]
Detroit Memorial Hospital[1-3]	Detroit	J. D. Langston	173	122,921	4,410	3,948	1	2	4[p]
Herman Kiefer Hospital[1-3]	Detroit	P. Martineau	274	667,965	1,728	1,728	2	2	1[p]
Receiving Hospital[1-3-190]	Detroit	O. A. Brines	720	63,324	8,730	8,730	10	20	4[p]
Sinai Hospital[1-3]	Detroit	S. D. Kobernick	151	147,241	4,602	3,418	1	3	3[p]
Woman's Hospital[1-3]	Detroit	E. R. Jennings	151	150,908	4,669	4,616	1	2	4[p]
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	S. E. Gould	401	369,009	6,190	6,190	2	7	4[p]
Hurley Hospital[1-3]	Flint, Mich.	E. G. Murphy	443	152,665	4,811	5,734	1	4	4[p]
McLaren General Hospital[1]	Flint, Mich.	E. G. Murphy	189	115,387	3,979	3,887	1	4	4[p]

Numerical and other references will be found on pages 556 through 559.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
t. Joseph Hospital [1-3]	Flint, Mich.	E. G. Murphy	244	132,863	4,476	3,766	1	3	1^a	400
lodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	C. A. Payne	308	137,069	7,794	7,794	1	4	4^p	275
utterworth Hospital [1-3]	Grand Rapids, Mich.	J. D. Mann	294	169,277	7,299	4,894	1	4	4^p	300
t. Mary's Hospital [1-3]	Grand Rapids, Mich.	H. E. Bowman	180	185,358	5,719	4,582	2	2	1^a	275
7. A. Foote Memorial Hospital	Jackson, Mich.	J. H. Ahronheim	172	58,587	2,319	2,319	1	2	2^p	325
orgess Hospital [1]	Kalamazoo, Mich.	P. Rutherford	121	44,470	3,030	3,030	1	1	2^p	275
dward W. Sparrow Hospital	Lansing, Mich.	C. E. Black	190	128,468	11,554	11,528	1	4	3^a	425
ontiac General Hospital [1-3]	Pontiac, Mich.	J. J. Marra	166	130,954	4,751	3,952	1	1	4^p	325
t. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	R. E. Olsen	144	91,835	4,221	4,125	1	3	4^p	325
aginaw General Hospital [1-3]	Saginaw, Mich.	R. V. Bucklin	163	108,651	4,207	4,029	1	4	4^p	345
t. Luke's Hospital [1-3]	Duluth, Minn.	A. H. Wells	375	1,188,954	7,332	7,000	1	4	4^p	285
t. Mary's Hospital	Duluth, Minn.	A. C. Aufderheide	289	272,884	4,546	4,137	1	4	2^a	200
finneapolis General Hospital [1-3]	Minneapolis	J. I. Coe	354	470,012	3,459	3,031	1	3	3^a	209
orthwestern Hospital [1-3]	Minneapolis	F. H. Lott	185	124,076	4,880	4,880	1	1	2^a	200
t. Barnabas Hospital [1-3]	Minneapolis	N. H. Lufkin	205	147,792	7,153	6,131	1	1	2^a	235
wedish Hospital [1-3]	Minneapolis	A. R. Jay	290	151,930	6,663	4,520	1	1	2^a	200
niversity of Minnesota Hospitals [1-3]	Minneapolis	J. R. Dawson	465	545,907	5,003	5,003	3	7	4^p	185
eterans Admin. Hospital [1-3]	Minneapolis	D. F. Gleason	373	347,634	6,318	6,002	..	2	4^p	...
ayo Foundation [1-3]	Rochester, Minn.	J. W. Kernohan-T. B. Magath	582	1,000,000	26,136	26,136	6	24	4^p	175
ncker Hospital [1-3]	St. Paul	J. F. Noble	407	218,668	1,590	1,590	1	1	2^a	185
harles T. Miller Hospital [1-3]	St. Paul	K. Ikeda	227	221,664	7,248	6,105	1	1	4^p	225
t. Joseph's Hospital [1-3]	St. Paul	E. M. James	164	116,836	4,475	3,858	2	2	2^a	185
lississippi Baptist Hospital [1]	Jackson, Miss.	K. M. Heard	96	159,957	5,056	4,460	1	1	1^a	350
niversity Hospital [1]	Jackson, Miss.	W. V. Hare	234	200,000	3,827	3,815	3	6	3^a	250
t. Louis County Hospital [1-3]	Clayton, Mo.	J. P. Wyatt	201	129,592	1,190	1,095	1	2	2^a	225
niversity of Missouri Medical Center [1-3]	Columbia, Mo.	J. E. Flynn	48	34,696	6,192	6,192	2	4	2^p	...
ansas City General Hospital No. 1	Kansas City, Mo.	D. M. Gibson	568	390,733	7,043	4,696	1	4	4^p	200
lenorah Medical Center [1-3]	Kansas City, Mo.	H. Cohen	163	139,173	5,482	3,096	2	4	4^p	200
esearch Hospital [1-3]	Kansas City, Mo.	H. K. B. Allebach	169	243,295	4,602	3,524	1	3	4^p	250
t. Joseph Hospital	Kansas City, Mo.	R. W. Kerr	196	302,563	6,241	5,913	1	4	4^p	250
t. Luke's Hospital [1-3]	Kansas City, Mo.	F. C. Helwig	317	243,186	14,047	12,642	2	6	4^p	225
t. Mary's Hospital [1-3]	Kansas City, Mo.	A. Lapi	192	169,310	6,464	5,034	1	4	4^p	275
arnes Hospital [1-3]	St. Louis	W. S. Hartroft	653	477,794	11,434	8,004	4	14	4^p	50
e Paul Hospital [1-3]	St. Louis	J. D. Bauer	160	164,537	6,450	4,440	2	2	4^p	200
lomer G. Phillips Hospital [1-3]	St. Louis	J. O. Blache	367	227,754	3,683	3,220	2	4	2^a	201
ewish Hospital [1-3]	St. Louis	H. T. Blumenthal	180	150,060	4,417	4,196	1	3	4^p	100
lissouri Baptist Hospital [1-3]	St. Louis	W. R. Platt	147	113,111	5,241	5,241	1	4	4^p	175
t. John's Hospital [1-3]	St. Louis	H. N. Allen	161	141,257	4,814	3,404	1	2	2^p	200
t. Louis City Hospital [1-3]	St. Louis	D. S. Johnson	665	281,456	4,475	4,475	3	6	4^p	92
t. Mary's Group of Hospitals [1-3]	St. Louis	H. Pinkerton	336	431,467	14,144	6,052	2	8	4^p	200
eterans Admin. Hospital [1-3]	St. Louis	J. M. Burnett	292	165,357	3,139	3,007	4	4	1^a	...
lontana Deaconess Hospital [1-3]	Great Falls, Mont.	E. J. Eichwald	94	48,000	2,400	2,055	1	1	1^a	275
incoln General Hospital [1]	Lincoln, Neb.	F. H. Tanner	84	82,756	3,534	3,065	1	1	1^a	250
ishop Clarkson Memorial Hospital [1]	Omaha	M. Foster	116	138,045	4,013	3,728	..	3	3^p	300
reighton Memorial—St. Joseph's Hospital	Omaha	V. Moragues	228	191,547	15,974	15,974	2	8	4^p	210
ebraska Methodist Hospital [1-3]	Omaha	J. R. Schenken	139	90,000	6,950	6,950	2	6	4^p	300
niversity of Nebraska Hospital [1-3]	Omaha	J. R. Schenken	133	113,911	2,112	2,112	1	4	4^p	175
eterans Admin. Hospital [1-3]	Omaha	R. E. Campbell	162	142,708	2,179	1,579	1	3	3^a	...
lary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. E. Miller	159	157,871	3,062	2,886	1	4	4^p	218
tlantic City Hospital [1-3]	Atlantic City, N. J.	M. Ackerman	224	95,790	3,283	3,283	1	2	2^a	200
ooper Hospital [1-3]	Camden, N. J.	W. T. Read, Jr.	303	207,203	5,224	4,590	1	1	1^p	200
ur Lady of Lourdes Hospital	Camden, N. J.	R. L. Breckenridge	173	152,735	3,449	2,286	2	2	2^p	250
Vest Jersey Hospital [1-3]	Camden, N. J.	E. E. Ziegler	96	149,164	1,909	1,696	2	2	3^a	200
eterans Admin. Hospital [1-3]	East Orange, N. J.	O. Auerbach	300	386,752	1,820	1,820	1	2	3^a	...
nglewood Hospital [1-3]	Englewood, N. J.	I. A. Gaspar	119	153,212	4,867	3,986	1	1	1^a	150
lunterdon Medical Center [1-3]	Flemington, N. J.	E. V. Olmstead	123	48,938	1,259	1,159	1	1	1^a	200
hrist Hospital [1-3]	Jersey City, N. J.	A. Gitlitz	121	111,141	3,569	3,442	1	3	2^p	175
ersey City Medical Center [1-3]	Jersey City, N. J.	A. M. Gnassi	272	256,501	9,441	9,441	2	3	4^p	146
lonmouth Memorial Hospital [1-3]	Long Branch, N. J.	M. Rush	220	138,721	3,856	3,300	1	2	2^a	200
[illegible]	Montclair, N. J.	J. L. Work	197	159,959	4,701	4,387	2	3	3^p	250
[illegible] [1-3]	Morristown, N. J.	H. F. Luddecke	145	140,499	4,068	3,622	1	3	3^a	250
urlington County Hospital [1-3]	Mt. Holly, N. J.	J. T. Bauer	163	70,129	1,414	1,414	..	2	2^a	100
itkin Memorial Hospital [1-3]	Neptune, N. J.	C. A. Pons	121	147,377	2,860	2,850	1	2	2^a	200
larrison S. Martland Medical Center [1-3]	Newark, N. J.	E. Albano	355	275,747	2,009	2,009	2	4	3^a	162
lospital of Saint Barnabas and for Women and Children [1]	Newark, N. J.	W. G. Bernhard	85	81,931	3,374	3,150	1	3	3^p	150
ewark Beth Israel Hospital [1-3]	Newark, N. J.	L. Goldman	215	91,230	6,112	6,112	1	2	4^p	100
resbyterian Hospital [1-3]	Newark, N. J.	S. A. Goldberg	126	133,035	6,212	4,796	1	2	3^p	175
t. Michael's Hospital [1-3]	Newark, N. J.	S. J. Rose	211	148,408	5,637	5,637	2	3	4^p	165
t. Peter's General Hospital [1-3]	New Brunswick, N. J.	W. A. Jarrett	120	52,203	3,335	2,152	1	1	2^a	175
range Memorial Hospital [1-3]	Orange, N. J.	A. R. Abel	193	97,762	3,430	3,380	1	4	4^p	150
ergen Pines County Hospital [1-3]	Paramus, N. J.	V. H. Gillson	284	112,362	692	692	2	2	2^a	200
assaic General Hospital [3]	Passaic, N. J.	J. R. Gannon	127	91,913	3,139	2,730	..	2	3^p	250
t. Mary's Hospital [1-3]	Passaic, N. J.	R. Brill	86	67,871	2,542	2,542	1	2	2^p	200
arnert Memorial Hospital [1-3]	Paterson, N. J.	J. Churg	120	84,924	3,658	3,200	1	2	2^p	200
aterson General Hospital [1-3]	Paterson, N. J.	A. H. Davis	187	50,574	4,967	4,816	1	2	2^p	150
t. Joseph Hospital [1-3]	Paterson, N. J.	G. B. Kim	170	190,285	4,930	4,896	2	4	4^p	200
verlook Hospital [3]	Summit, N. J.	G. L. Erdman	180	122,645	5,541	4,633	1	4	2^p	150
lercer Hospital [1-3]	Trenton, N. J.	T. K. Rathmell	164	117,413	2,150	2,150	..	2	4^p	250
t. Francis Hospital [1-3]	Trenton, N. J.	S. Weintraub	234	184,987	8,730	5,743	1	1	2^a	210
ataan Memorial Methodist Hospital [1-3]	Albuquerque, N. Mex.	T. L. Chiffelle	73	34,704	2,045	1,621	1	2	2^p	250
ernalillo County-Indian Hospital [1]	Albuquerque, N. Mex.	H. V. Beighley-N. E. Pond	136	149,468	1,944	1,344	1	4	4^p	310
eterans Admin. Hospital [1-3]	Albuquerque, N. Mex.	W. Hentel	126	207,064	1,551	1,528	1	1	2^p	237
lbany Hospital [1-3]	Albany, N. Y.	A. W. Wright	431	167,354	7,830	7,830	2	8	4^p	160
ender Laboratory Hospitals [1-3]	Albany, N. Y.	J. J. Clemmer	363	373,368	9,339	8,659	2	5	4^p	300
Anthony N. Brady Maternity Home	Albany, N. Y.									
Memorial Hospital	Albany, N. Y.									
St. Peter's Hospital	Albany, N. Y.									
eterans Admin. Hospital [1-3]	Albany, N. Y.	T. S. Beecher	257	234,379	2,234	2,234	1	2	3^p	...
inghamton City Hospital [1-3]	Binghamton, N. Y.	F. P. Becker	200	111,569	3,145	2,700	1	2	4^p	300
awrence Hospital [1-3]	Bronxville, N. Y.	A. A. Eggston	82	54,494	1,903	1,903	2	2	1^p	225
eth-El Hospital [1-3]	Brooklyn, N. Y.	D. M. Spain	102	346,990	4,266	4,244	1	1	3^p	125
rooklyn Hospital [1-3]	Brooklyn, N. Y.	J. A. De Veer	177	124,578	4,192	4,000	1	3	4^p	175
oney Island Hospital	Brooklyn, N. Y.	H. Fink	187	247,587	1,800	1,800	1	4	4^p	157
umberland Hospital [1-3]	Brooklyn, N. Y.	S. H. Polayes	161	122,586	1,938	1,670	1	3	4^p	104
reenpoint Hospital [1-3]	Brooklyn, N. Y.	R. Aronoff	123	122,606	1,140	1,140	2	3	3^p	105
ewish Chronic Disease Hospital [1-3-44]	Brooklyn, N. Y.	B. W. Volk	87	197,190	431	431	1	1	2^p	175
ewish Hospital [1-3]	Brooklyn, N. Y.	D. Grayzel	204	143,611	6,702	6,696	2	5	4^p	100
ings County Hospital Center	Brooklyn, N. Y.	P. J. Fitzgerald	1,268	630,693	10,372	10,372	7	10	4^p	104
ong Island College Hospital [1-3]	Brooklyn, N. Y.	T. G. Morrione	204	160,291	4,242	4,010	2	6	4^p	156

Numerical and other references will be found on pages 556 through 559.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Monthly)
Lutheran Medical Center $^{1-3}$	Brooklyn, N. Y.	E. S. Wedding	116	130,460	2,053	2,053	2	2	1^p	[illegible]
Maimonides Hospital $^{1-3}$	Brooklyn, N. Y.	A. R. Kantrowitz	198	329,689	5,568	5,568	3	6	4^p	[illegible]
Methodist Hospital $^{1-3}$	Brooklyn, N. Y.	B. S. Herr, Jr.	106	106,847	3,553	3,553	1	3	3^p	[illegible]
St. Catherine's Hospital $^{1-3}$	Brooklyn, N. Y.	M. Wachstein	99	108,556	1,653	1,653	1	2	2^p	[illegible]
St. John's Episcopal Hospital $^{1-3}$	Brooklyn, N. Y.	L. M. Fox	88	101,836	3,677	3,677	1	2	2^p	[illegible]
St. Mary's Hospital $^{1-3}$	Brooklyn, N. Y.	W. Moitrier	85	122,174	4,144	4,144	1	2	2^p	[illegible]
Veterans Admin. Hospital $^{1-3-233}$	Brooklyn, N. Y.	M. Bovarnick	300	306,430	3,511	3,511	3	4	4^p	..
Buffalo General Hospital $^{1-3}$	Buffalo	K. L. Terplan-S. L. Vaughan	438	8,395	8,372	7,178	2	4	3^p	[illegible]
Deaconess Hospital $^{1-3}$	Buffalo	S. Tannhauser	129	33,812	4,843	3,829	..	1	3^p	[illegible]
Edward J. Meyer Memorial Hospital $^{1-3}$	Buffalo	S. Sanes	462	409,833	4,832	4,832	1	3	2^a	[illegible]
Millard Fillmore Hospital $^{1-3}$	Buffalo	A. V. Postoloff	260	280,534	6,848	6,848	1	2	4^p	[illegible]
Roswell Park Memorial Institute $^{1-3}$	Buffalo	J. W. Pickren	388	12,336	6,461	6,458	2	4	2^a	[illegible]
Veterans Admin. Hospital $^{1-3}$	Buffalo	J. B. Sheffer	234	283,249	1,871	1,497	1	2	3^p	..
Elmhurst General Hospital $^{1-3-17}$	Elmhurst, N. Y.	I. Chapman	206	119,592	2,133	1,743	1	4	4^p	[illegible]
Arnot-Ogden Memorial Hospital ^{1}	Elmira, N. Y.	B. Juvelier	104	68,058	3,429	3,429	1	1	1^a	[illegible]
St. Joseph's Hospital	Elmira, N. Y.	J. A. Mitchell	127	166 551	3,356	2,089	..	..	2^a	...
Flushing Hospital and Dispensary $^{1-3}$	Flushing, N. Y.	I. Garrow	162	130,562	3,908	3,599	1	4	4^p	[illegible]
Glens Falls Hospital $^{1-3}$	Glens Falls, N. Y.	M. Maslon	118	102,494	4,328	4,178	..	1	2^p	[illegible]
Meadowbrook Hospital $^{1-3}$	Hempstead, N. Y.	V. S. Palladino	652	546,410	4,232	4,195	3	12	4^p	[illegible]
Mary Immaculate Hospital ^{3}	Jamaica, N. Y.	M. Bevilacqua	89	101,133	3,186	2,670	2	4	2^p	[illegible]
Queens Hospital Center $^{1-3}$	Jamaica, N. Y.	G. Silverman	624	103,075	4,611	4,611	4	8	4^p	[illegible]
Charles S. Wilson Memorial Hospital $^{1-3}$	Johnson City, N. Y.	A. Kosinski	203	168,064	5,980	3,590	1	4	4^p	[illegible]
Kingston Laboratory Hospitals $^{1-3}$	Kingston, N. Y.	H. Derman	157	201,560	4,702	4,702	1	3	2^p	[illegible]
Kingston Hospital	Kingston, N. Y.	....	...	......	.....	.....	..	..	..	...
Benedictine Hospital	Kingston, N. Y.	....	...	......	.....	.....	..	..	..	...
Ulster County Tuberculosis Hospital	Kingston, N. Y.	....	...	......	.....	.....	..	..	..	...
St. John's Long Island City Hospital $^{1-3}$	Long Island City, N. Y.	E. Santora	132	57,450	1,528	1,460	1	1	1^p	[illegible]
North Shore Hospital $^{1-3}$	Manhasset, N. Y.	S. Gross	90	101,517	3,026	2,444	..	1	1^p	[illegible]
Nassau Hospital $^{1-3}$	Mineola, N. Y.	R. Durham	164	99,491	4,500	3,900	1	4	2^a	[illegible]
Mount Vernon Hospital $^{1-3}$	Mount Vernon, N. Y.	J. G. Sharnoff	151	82,481	3,648	3,648	1	2	3^p	[illegible]
Long Island Jewish Hospital $^{1-3}$	New Hyde Park, N. Y.	J. I. Berkman	195	177,683	5,791	5,791	1	3	3^p	[illegible]
New Rochelle Hospital $^{1-3}$	New Rochelle, N. Y.	W. C. Schraft	132	123,235	4,867	4,867	1	1	1^a	[illegible]
Bellevue Hospital Center										
Div. III—New York University College of Medicine	New York City	M. Kuschner	799	563,106	9,498	9,498	3	10	4^p	[illegible]
Beth Israel Hospital $^{1-3}$	New York City	W. Antopol	121	126,882	4,499	4,499	1	4	4^p	[illegible]
Bronx Hospital $^{1-3}$	New York City	L. Reiner	91	193,366	2,898	2,898	1	2	2^p	[illegible]
Bronx Municipal Hospital Center $^{1-3}$	New York City	A. A. Angrist	334	424,816	3,306	3,306	6	12	4^p	[illegible]
Doctor's Hospital $^{1-3}$	New York City	J. R. Lisa	78	85,483	3,281	3,254	2	2	1^a	[illegible]
Fordham Hospital $^{1-3}$	New York City	L. J. Millman	231	130,010	2,374	2,374	1	2	2^a	[illegible]
Francis Delafield Hospital $^{1-3}$	New York City	H. P. Smith	213	125,443	3,134	3,134	6	6	3^a	[illegible]
Goldwater Memorial Hospital $^{1-3}$	New York City	J. Rosenthal	113	806,668	406	406	2	3	2^p	[illegible]
Harlem Hospital $^{1-3}$	New York City	V. B. Dolgopol	391	212,287	3,624	3,624	1	3	4^p	
Hospital For Joint Diseases $^{1-3-28}$	New York City	H. L. Jaffe	59	95,565	2,461	2,461	..	1	1^a	
Jewish Memorial Hospital $^{1-3}$	New York City	A. Schwarz	90	99,878	2,028	1,719	1	1	2^p	[illegible]
Knickerbocker Hospital $^{1-3}$	New York City	W. B. Ober	96	65,355	1,280	1,105	1	1	1^a	[illegible]
Lebanon Hospital $^{1-3}$	New York City	J. C. Ehrlich	132	155,126	4,068	4,068	..	4	3^p	[illegible]
Lenox Hill Hospital $^{1-3}$	New York City	P. J. Manheims	152	101,085	5,126	5,126	1	4	4^p	[illegible]
Lincoln Hospital $^{1-3}$	New York City	H. Lepow	194	138,207	2,526	2,526	1	2	4^p	[illegible]
Memorial Center for Cancer and Allied Diseases	New York City	F. W. Stewart	457	394,793	18,771	18,771	..	10	3^a	[illegible]
James Ewing Hospital ^{1}	New York City	....	...	......	.....	.....	..	..	..	
Memorial Hospital $^{1-3}$	New York City	....	...	......	.....	.....	..	..	..	
Misericordia Hospital	New York City	G. Hatzel	58	61,408	1,908	1,908	1	1	1^a	[illegible]
Montefiore Hospital $^{1-3}$	New York City	H. Zimmerman	485	163,817	4,795	4,795	2	7	3^p	[illegible]
Morrisania City Hospital $^{1-3}$	New York City	M. R. Dacso	303	135,130	2,550	2,534	1	3	4^p	
Mount Sinai Hospital $^{1-3}$	New York City	H. Popper	485	388,109	9,888	9,888	2	8	4^p	
New York Hospital $^{1-3}$	New York City	J. G. Kidd	414	449,312	8,418	7,737	2	5	4^p	
New York Medical College—Metropolitan Medical Center										
Flower and Fifth Avenue Hospitals	New York City	F. Speer	99	185,940	6,064	4,005	2	4	4^p	...
Metropolitan Hospital $^{1-3}$	New York City	F. Speer	260	174,933	2,074	1,305	1	4	4^p	[illegible]
New York Polyclinic Medical School and Hospital $^{1-3}$	New York City	W. E. Finkelstein	110	46,433	5,827	5,827	1	3	2^p	[illegible]
New York University—Bellevue Medical Center										
University Hospital	New York City	M. Richter	118	1,026,574	5,844	5,040	2	4	2^a	[illegible]
Presbyterian Hospital ^{1}	New York City	H. P. Smith-R. Lattes	590	540,500	9,308	9,308	2	7	3^a	[illegible]
Roosevelt Hospital $^{1-3}$	New York City	B. Kalfayan	170	165,726	4,288	4,288	1	2	2^a	[illegible]
St. Barnabas Hospital for Chronic Diseases $^{1-3}$	New York City	H. K. Russell	138	84,922	2,307	1,168	1	2	2^p	[illegible]
St. Clare's Hospital $^{1-3}$	New York City	J. M. Ravid	112	125,223	3,903	3,864	1	2	2^p	[illegible]
St. Francis Hospital $^{1-3}$	New York City	F. Summeril	94	104,199	2,279	2,270	1	1	1^p	[illegible]
St. Luke's Hospital	New York City	C. F. Begg	244	223,619	3,876	3,876	1	4	4^p	[illegible]
St. Vincent's Hospital $^{1-3}$	New York City	A. Rottino	373	216,547	4,366	4,366	1	2	3^a	[illegible]
Veterans Admin. Hospital $^{1-3}$	New York City (Bronx)	B. S. Gordon	380	478,213	3,790	3,790	3	6	3^p	...
Veterans Admin. Hospital $^{1-3}$	New York City (Manhattan)	M. Kenney	275	274,591	2,902	2,902	3	6	4^p	...
United Hospital $^{1-3}$	Port Chester, N. Y.	M. Loder	97	99,384	2,652	2,447	1	1	1^p	[illegible]
Vassar Brothers Hospital $^{1-3}$	Poughkeepsie, N. Y.	M. L. Dreyfuss	134	105,389	4,165	4,165	2	2	2^p	[illegible]
Genesee Hospital $^{1-3}$	Rochester, N. Y.	J. Abbott	238	187,091	4,443	4,409	1	2	2^a	[illegible]
Rochester General Hospital $^{1-3}$	Rochester, N. Y.	M. G. Bohrod	383	168,037	8,923	7,138	2	8	4^p	[illegible]
St. Mary's Hospital $^{1-3}$	Rochester, N. Y.	J. Adler	268	172,115	7,853	3,720	2	6	4^p	[illegible]
Strong Memorial-Rochester Municipal Hospitals $^{1-3}$	Rochester, N. Y.	J. L. Orbison	549	......	5,239	5,239	4	8	3^a	[illegible]
Ellis Hospital $^{1-3}$	Schenectady, N. Y.	E. Kellert	258	260,324	6,393	6,393	1	4	3^p	[illegible]
St. Vincent's Hospital $^{1-3}$	Staten Island, N. Y.	V. Kogan	146	116,473	13,124	9,981	1	1	1^a	[illegible]
Staten Island Hospital $^{1-3}$	Staten Island, N. Y.	V. Altmann	85	68,910	2,028	2,028	1	1	1^a	[illegible]
St. Joseph's Hospital $^{1-3}$	Syracuse, N. Y.	H. J. Dick	168	136,911	3,652	3,652	1	1	2^p	[illegible]
State University of New York Upstate Medical										
Center Hospitals $^{1-3}$	Syracuse, N. Y.	J. H. Ferguson	386	8,204	8,204	8,204	6	6	3^a	[illegible]
Veterans Admin. Hospital $^{1-3}$	Syracuse, N. Y.	J. A. Schaefer	145	138,996	2,057	2,050	..	1	3^p	...
Samaritan Hospital $^{1-3}$	Troy, N. Y.	C. G. Burn	121	75,720	3,024	2,360	1	1	1^p	...
Utica State Hospital $^{1-3-203}$	Utica, N. Y.	N. M. Levine	61	27,201	150	150	1	5	4^p	...
Grasslands Hospital $^{1-3}$	Valhalla, N. Y.	V. A. Bradess	661	283,172	3,549	3,015	2	6	4^p	[illegible]
St. John's Riverside Hospital $^{1-3}$	Yonkers, N. Y.	C. De Angelis	69	64,893	1,716	1,641	1	1	1^p	[illegible]
North Carolina Memorial Hospital $^{1-3}$	Chapel Hill, N. C.	K. M. Brinkhous	246	213,357	12,338	12,338	3	12	4^p	[illegible]
Charlotte Memorial Hospital ^{1}	Charlotte, N. C.	P. Kimmelstiel	223	199,495	7,665	7,449	1	4	4^p	[illegible]
Presbyterian Hospital ^{1}	Charlotte, N. C.	H. L. Large, Jr.	122	118,882	4,773	4,614	..	..	2^a	...
Duke University Affiliated Hospitals										
Duke Hospital $^{1-3}$	Durham, N. C.	W. D. Forbus	364	668,756	7,718	7,718	3	12	3^a	[illegible]
Veterans Admin. Hospital $^{1-3}$	Durham, N. C.	R. D. Baker	141	176,859	2,629	2,629	..	5	4^p	...
Watts Hospital $^{1-3}$	Durham, N. C.	J. U. Gunter	80	170,632	5,567	5,543	..	1	1^p	[illegible]
Moses H. Cone Memorial Hospital	Greensboro, N. C.	....	180	103,841	4,767	4,669	1	4	4^p	[illegible]
Veterans Admin. Hospital $^{1-3}$	Oteen, N. C.	O. Kanner	139	347,248	1,911	1,911	..	1	1^p	...
North Carolina Baptist Hospital $^{1-3}$	Winston-Salem, N. C.	R. P. Morehead	308	318,453	38,203	38,203	2	7	4^p	[illegible]
Akron City Hospital $^{1-3}$	Akron, Ohio	L. Catron	348	297,846	8,525	8,525	1	3	3^a	[illegible]
Akron General Hospital ^{1}	Akron, Ohio	G. R. Dochat	205	264,795	6,155	5,135	1	4	4^p	[illegible]

Numerical and other references will be found on pages 556 through 559.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
ltman Hospital $^{1-3}$	Canton, Ohio	D. G. Henderson	285	233,858	4,348	4,348	1	4	4^p	275
ercy Hospital	Canton, Ohio	A. Raftery	190	147,572	5,564	5,120	1	4	4^p	...
thesda Hospital $^{1-3}$	Cincinnati	J. B. Hamblet	131	61,562	5,002	3,935	1	3	3^p	200
iversity of Cincinnati College of Medicine Hospital Group										
Cincinnati General Hospital $^{1-3}$	Cincinnati	E. A. Gall	657	145,830	4,198	4,198	3	7	4^p	100
ood Samaritan Hospital $^{1-3}$	Cincinnati	L. Z. Gordon	246	208,842	11,212	4,797	1	3	3^a	250
wish Hospital $^{1-3}$	Cincinnati	P. Wasserman	263	267,332	7,110	6,303	1	4	4^p	145
ity Hospital $^{1-3}$	Cleveland	T. D. Kinney	353	290,507	2,742	2,742	6	10	4^p	162.50
leveland Clinic Hospital $^{1-3}$	Cleveland	J. B. Hazard	256	572,802	7,174	7,173	2	8	4^p	175
uron Road Hospital $^{1-3}$	Cleveland	E. Goodsitt	144	21,384	5,708	5,708	2	2	4^p	210
utheran Hospital $^{1-3}$	Cleveland	W. Sinclair, Jr.	153	81,959	2,857	2,677	1	2	2^p	250
ount Sinai Hospital $^{1-3}$	Cleveland	H. Goldblatt	283	467,656	6,045	6,045	1	4	4^p	215
t. Luke's Hospital $^{1-3}$	Cleveland	R. Dominguez	277	314,684	6,235	5,899	1	4	4^p	140
t. Vincent Charity Hospital $^{1-3}$	Cleveland	J. S. Mackrell, Jr.	206	179,110	3,990	3,576	1	3	4^p	210
niversity Hospitals $^{1-3}$	Cleveland	A. R. Moritz	508	333,175	9,123	9,123	3	10	4^p	125
eterans Admin. Hospital $^{1-3-307}$	Cleveland	J. R. Kahn	265	289,443	3,787	3,500	4	4	4^p	...
hildren's Hospital $^{1-3}$	Columbus, Ohio	W. A. Newton, Jr.	281	99,730	2,176	2,149	2	3	1^p	150
rant Hospital	Columbus, Ohio	B. H. Hurd	143	123,450	4,963	4,953	2	2	1^a	300
hio State University Hospitals										
University Hospital	Columbus, Ohio	E. Von Haam	595	825,220	41,606	41,606	4	16	4^p	177
hite Cross Hospital $^{1-3}$	Columbus, Ohio	R. J. Johansmann	204	207,990	8,881	8,881	1	3	2^a	290
iami Valley Hospital $^{1-3}$	Dayton, Ohio	M. Oosting	326	321,643	10,020	10,020	3	12	4^p	200
eterans Admin. Hospital $^{1-3}$	Dayton, Ohio	G. W. Knabe	251	199,885	1,797	1,797	3	3	3^p	...
lyria Memorial Hospital	Elyria, Ohio	R. G. Thomas	236	119,229	3,463	3,263	1	2	2^p	270
ercy Hospital $^{1-3}$	Hamilton, Ohio	K. Lande	138	111,457	1,842	1,842	1	1	1^a	250
t. Rita's Hospital $^{1-3}$	Lima, Ohio	C. L. Blumstein	194	134,814	4,405	3,311	1	4	4^p	325
pringfield City Hospital $^{1-3}$	Springfield, Ohio	R. E. Wybel	185	127,304	4,404	3,618	1	2	2^p	300
aumee Valley Hospital $^{1-3}$	Toledo, Ohio	J. G. Snavely	154	111,589	1,863	1,846	1	1	2^a	210
ercy Hospital $^{1-3}$	Toledo, Ohio	E. L. Burns	189	147,892	5,707	4,696	1	2	4^p	275
t. Vincent's Hospital $^{1-3}$	Toledo, Ohio	M. F. Vidoli	218	174,117	6,292	6,292	1	1	2^a	275
oledo Hospital $^{1-3}$	Toledo, Ohio	B. Steinberg	272	133,671	5,210	4,889	1	4	4^p	200
rumbull Memorial Hospital $^{1-3}$	Warren, Ohio	R. J. Williams	135	151,962	3,604	3,323	1	2	2^a	250
St. Elizabeth Hospital $^{1-3}$	Youngstown, Ohio	J. Lo Cricchio	172	102,246	7,266	5,369	1	1	4^p	300
oungstown Hospital $^{1-3}$	Youngstown, Ohio	A. E. Rappoport	484	305,579	6,957	6,957	2	8	4^p	175
St. Anthony Hospital	Oklahoma City	W. T. Snoddy	121	225,600	8,680	6,449	1	3	4^p	250
niversity of Oklahoma Hospitals $^{1-3}$	Oklahoma City	W. E. Jaques	244	250,172	4,279	3,857	1	4	4^p	...
Hillcrest Medical Center $^{1-3}$	Tulsa, Okla.	L. Lowbeer	177	159,397	6,807	5,500	1	4	4^p	200
St. John's Hospital $^{1-3}$	Tulsa, Okla.	E. E. Palik	149	203,821	7,282	7,282	2	2	4^p	175
Emanuel Hospital $^{1-3}$	Portland, Ore	V. D. Sneeden	336	203,495	8,321	6,041	1	1	3^a	275
Good Samaritan Hospital $^{1-3}$	Portland, Ore.	W. L. Lehman	444	302,363	9,253	8,105	1	4	4^p	275
Providence Hospital $^{1-3}$	Portland, Ore.	J. Minckler	232	233,679	6,674	5,134	1	4	4^p	275
St. Vincent's Hospital $^{1-3}$	Portland, Ore.	J. E. Nohlgren	235	237,925	9,774	8,840	1	4	4^p	275
University of Oregon Medical School Hospitals and Clinics $^{1-327}$	Portland, Ore.	W. C. Hunter-R. Grondahl	444	234,016	3,465	3,465	5	9	4^p	100
Veterans Admin. Hospital $^{1-3}$	Portland, Ore.	E. J. Losli	230	196,035	2,600	2,500	1	1	2^a	...
Abington Memorial Hospital $^{1-3}$	Abington, Pa.	J. W. Eiman	187	277,582	5,235	5,193	1	4	4^p	150
Allentown Hospital $^{1-3}$	Allentown, Pa.	R. E. Bovard	291	251,741	5,280	4,647	1	4	4^p	225
Sacred Heart Hospital $^{1-3}$	Allentown, Pa.	D. E. Stader	121	152,580	6,512	5,622	1	1	2^a	225
Altoona Hospital $^{1-3}$	Altoona, Pa.	G. J. Heid, Jr.	131	134,906	4,429	4,429	2	2	1^a	325
St. Luke's Hospital $^{1-3}$	Bethlehem, Pa.	E. J. Benz	234	132,759	3,678	3,678	1	2	4^p	275
Bryn Mawr Hospital $^{1-3}$	Bryn Mawr, Pa	M. M Strumia	211	260,716	4,499	4,117	1	4	4^p	200
Chester Hospital $^{1-3}$	Chester, Pa.	G. B. Sickel	270	137,387	3,697	3,697	1	4	2^a	350
Geo. F. Geisinger Memorial Hospital $^{1-3}$	Danville, Pa.	T. K. Hepler	152	253,183	3,240	3,172	1	2	4^p	175
Thomas M. Fitzgerald Mercy Hospital $^{1-3}$	Darby, Pa.	W. H. Miller	154	94,414	2,664	2,664	4	16	4^p	200
Hamot Hospital $^{1-3}$	Erie, Pa.	E. L. Armstrong	192	335,981	7,003	6,520	1	4	4^p	225
St. Vincent's Hospital $^{1-3}$	Erie, Pa.	R. B. Eisenberg	180	176,259	4,093	4,054	1	4	4^p	200
Harrisburg Hospital	Harrisburg, Pa.	F. W. Brason	304	310,071	17,058	17,008	1	4	4^p	250
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	J. S. Forrester	231	242,733	6,335	6,335	1	1	2^a	300
Conemaugh Valley Memorial Hospital $^{1-3}$	Johnstown, Pa.	R. C. Greene	177	245,192	5,579	4,720	1	4	4^p	300
Lancaster General Hospital $^{1-3}$	Lancaster, Pa.	W. M. O'Donnell	205	168,180	4,058	4,058	2	4	2^a	200
St. Joseph's Hospital ^{1}	Lancaster, Pa.	H. Shaub	148	125,204	4,511	4,298	1	2	2^a	300
Albert Einstein Medical Center										
Northern Division $^{1-3}$	Philadelphia	H. Brody	263	220,676	5,134	5,134	2	4	4^p	150
Southern Division $^{1-3}$	Philadelphia	D. Meranze	143	172,593	4,689	4,689	1	4	4^p	150
Episcopal Hospital $^{1-3}$	Philadelphia	A. D. Wallis	181	182,157	2,699	2,699	1	1	4^p	150
Frankford Hospital $^{1-3}$	Philadelphia	L. Rauer	158	125,981	3,095	3,095	2	2	3^p	250
Germantown Dispensary and Hospital $^{1-3}$	Philadelphia	F. Fite	195	113,122	3,296	3,296	1	4	4^p	175
Graduate Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	A. Valdes-Dapena	167	180,998	3,108	3,108	1	3	3^a	100
Hahnemann Medical College and Hospital $^{1-3}$	Philadelphia	J. E. Imbriglia	327	282,218	6,299	6,299	2	6	4^p	75
Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	H. T. Enterline-R. Norris	394	451,484	8,733	8,733	3	12	4^p	150
Hospital of the Woman's Medical College of Pennsylvania $^{1-3}$	Philadelphia	I. N. Dubin	110	89,618	2,155	2,141	1	4	4^p	110
Jefferson Medical College Hospital $^{1-3}$	Philadelphia	P. A. Herbut	323	296,149	7,657	7,657	2	7	4^p	150
Lankenau Hospital $^{1-3}$	Philadelphia	C. E. Brown	178	168,088	5,093	5,093	1	4	4^p	200
Misericordia Hospital ^{1}	Philadelphia	H. E. Marx	166	140,018	3,128	3,128	1	2	2^p	250
Pennsylvania Hospital $^{1-3}$	Philadelphia	A. R. Crane	286	362,772	6,460	6,460	4	4	4^p	100
Philadelphia General Hospital $^{1-3}$	Philadelphia	J. Clark	1,132	682,407	8,088	8,000	2	5	4^p	121
Presbyterian Hospital $^{1-3}$	Philadelphia	R. P. Custer	240	160,022	4,446	3,982	4	7	4^p	150
Temple University Hospital $^{1-3}$	Philadelphia	E. E. Aegerter	271	511,308	6,907	6,907	3	10	4^p	...
Veterans Admin. Hospital $^{1-3}$	Philadelphia	A. L. Pietroluongo	323	234,408	1,968	1,968	2	4	3^a	...
Allegheny General Hospital ^{1}	Pittsburgh	R. C. Grauer	267	193,540	5,414	5,414	1	4	4^p	300
Mercy Hospital $^{1-3}$	Pittsburgh	M. M. Bracken	202	322,606	9,576	6,024	2	8	4^p	235
Montefiore Hospital $^{1-3}$	Pittsburgh	K. Y. Yardumian	157	151,243	5,735	4,398	3	3	4^p	225
Health Center Hospitals of the University of Pittsburgh School of Medicine										
Children's Hospital $^{1-3}$	Pittsburgh	G. H. Fetterman	155	123,944	1,359	1,359	2	3	1^p	125
Elizabeth Steel Magee Hospital $^{1-3}$	Pittsburgh	J. C. Henthorne	189	98,036	4,738	4,738	1	2	2^p	...
Presbyterian Hospital	Pittsburgh	T. Moran	612	413,941	11,644	11,644	7	13	4^p	125
St. Francis General Hospital and Rehabilitation Institute $^{1-3}$	Pittsburgh	R. C. Hamilton	229	234,396	3,515	3,498	1	3	4^p	200
St. Margaret Memorial Hospital $^{1-3}$	Pittsburgh	J. E. Kurtz	76	81,146	1,821	1,821	1	1	1^p	300
Shadyside Hospital ^{1}	Pittsburgh	E. L. Heller	196	105,816	3,397	2,264	1	2	4^p	400
South Side Hospital $^{1-3}$	Pittsburgh	L. Goodman	133	125,696	2,489	2,489	1	3	2^a	300
Veterans Admin. Hospital $^{1-3}$	Pittsburgh	E. R. Fisher	324	269,003	2,517	2,517	2	4	4^p	...
Western Pennsylvania Hospital $^{1-3}$	Pittsburgh	R. G. McManus	271	202,204	6,811	5,632	2	8	4^p	225
Community General Hospital $^{1-3}$	Reading, Pa.	H. S. Cook	116	75,319	2,413	2,371	..	1	2^p	300
Reading Hospital $^{1-3}$	Reading, Pa.	W. P. Jennings	279	169,190	3,709	3,679	2	8	4^p	225
St. Joseph's Hospital $^{1-3}$	Reading, Pa.	G. Desjardins	155	133,439	4,300	3,071	1	4	2^a	250
Robert Packer Hospital $^{1-3}$	Sayre, Pa.	C. H. DeWan	163	214,484	3,144	3,144	1	3	4^p	200
Scranton State Hospital $^{1-3}$	Scranton, Pa.	G. A. Clark	106	102,192	2,575	1,443	1	1	1^a	470

Numerical and other references will be found on pages 556 through 559.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Total Number of Laboratory Examinations	Number of Surgical Specimens	Number Examined Microscopically	First Year Residencies Offered [x]	Total Residencies Offered [x]	Length of Approved Program (Years)	Beginning Stipend (Month)
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.	C. E. Rodriguez	119	115,686	9,051	8,589	1	2	2A	[illegible]
Williamsport Hospital [1-3]	Williamsport, Pa.	M. G. Colvin	125	150,477	5,065	4,470	..	1	4P	[illegible]
York Hospital	York, Pa.	J. M. Smith	239	153,968	4,974	4,974	1	2	4P	[illegible]
Rhode Island Hospital [1-3]	Providence, R. I.	H. Fanger	403	321,192	10,930	10,930	3	8	4P	[illegible]
Medical College of South Carolina Teaching Hospitals [1]	Charleston, S. C.	K. M. Lynch	304	137,947	4,718	3,551	1	3	4P	[illegible]
Greenville General Hospital [1-3]	Greenville, S. C.	E. A. Dreskin	236	189,992	15,933	7,695	1	3	4P	[illegible]
Spartanburg General Hospital [1]	Spartanburg, S. C.	C. L. Dale	147	190,647	7,011	7,011	1	1	4P	[illegible]
Baroness Erlanger Hospital [1-3-12]	Chattanooga, Tenn.	J. W. Adams	229	273,587	14,694	14,694	2	3	2P	[illegible]
East Tennessee Baptist Hospital [1-3]	Knoxville, Tenn.	R. J. Leffler	106	101,053	5,106	4,596	1	2	2P	[illegible]
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	G. Mahon	106	96,699	5,066	3,505	1	2	2P	[illegible]
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	M. L. Trumbull	307	285,071	13,091	11,616	3	9	4P	[illegible]
City of Memphis Hospitals [1-3]	Memphis, Tenn.	D. H. Sprunt	657	31,617	5,893	5,893	6	18	4P	[illegible]
Methodist Hospital	Memphis, Tenn.	W. W. Tribby	118	173,663	8,408	7,486	1	2	3P	[illegible]
St. Joseph Hospital [1-3]	Memphis, Tenn.	L. Prieto	138	150,148	4,859	4,766	1	3	2A	[illegible]
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	J. M. Young	315	340,488	4,843	4,292	1	1	3P	...
Baptist Hospital [1-3]	Nashville, Tenn.	F. Womack	114	164,495	5,596	4,090	1	2	2A	[illegible]
George W. Hubbard Hospital [1-4]	Nashville, Tenn.	J. R. Cuff	160	1,925	2,067	2,067	2	2	2A	[illegible]
Nashville General Hospital [1-3]	Nashville, Tenn.	W. A. DeMonbreun	98	105,470	6,589	6,245	1	2	2P	[illegible]
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	J. L. Shapiro	275	270,000	3,332	3,265	2	5	4P	[illegible]
Oak Ridge Institute of Nuclear Studies [1-3-20]	Oak Ridge, Tenn.	C. H. Steffee	30	14,831	198	198	..	2	1A	[illegible]
Brackenridge Hospital [1]	Austin, Texas	J. R. Rainey, Jr.	134	64,819	2,763	2,286	1	1	2A	[illegible]
Baylor University Hospital [1-3]	Dallas, Texas	J. M. Hill	324	362,266	12,551	12,551	2	7	4P	[illegible]
Methodist Hospital [1-3]	Dallas, Texas	A. B. Cairns	115	68,805	5,943	4,123	1	3	2P	[illegible]
Parkland Memorial Hospital [1-3]	Dallas, Texas	C. Ashworth	327	669,305	4,398	4,398	2	6	4P	[illegible]
St. Paul's Hospital [1-3]	Dallas, Texas	J. L. Goforth	220	233,296	13,093	8,862	2	8	4P	[illegible]
Harris Hospital [1-4]	Fort Worth, Texas	C. Ashworth-C. Fitzwilliam	178	196,736	14,264	13,609	1	2	4P	[illegible]
St. Joseph's Hospital [1-3]	Fort Worth, Texas	O. J. Wollenman, Jr.	205	208,321	5,161	4,189	4	8	4P	[illegible]
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	E. Baird	410	250,937	6,039	6,003	2	8	4P	[illegible]
Baylor University College of Medicine Affiliated Hospitals										
Jefferson Davis Hospital [1-3]	Houston, Texas	S. A. Wallace	464	380,066	4,691	4,675	2	6	4P	[illegible]
Methodist Hospital [1-3]	Houston, Texas	J. P. Abbott	220	22,426	8,023	7,061	1	4	4P	[illegible]
Veterans Admin. Hospital [1-3]	Houston, Texas	B. Halpert	389	476,664	2,501	2,292	2	4	4P	[illegible]
Hermann Hospital [1-3]	Houston, Texas	W. G. Brown	219	441,676	10,246	9,213	1	4	4P	[illegible]
Memorial Hospital [1-3]	Houston, Texas	F. Leidler	131	159,005	7,162	7,007	1	3	3P	
St. Joseph's Hospital [5]	Houston, Texas	P. M. Marcuse	191	128,291	6,304	5,498	1	4	4P	
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	W. O. Russell	248	203,835	6,645	6,645	2	14	4P	
Veterans Admin. Hospital [1-3]	McKinney, Texas	R. D. Reed	128	139,612	2,127	2,127	1	1	4P	
Baptist Memorial Hospital [1-3]	San Antonio, Texas	A. O. Severance	160	180,976	5,001	4,713	1	4	4P	
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	D. L. Galindo	256	137,543	2,687	2,630	1	3	3P	
Santa Rosa Hospital [1-3]	San Antonio, Texas	N. H. Jacob	213	205,464	6,114	3,954	1	4	4P	
Scott and White Memorial Hospitals [1-3]	Temple, Texas	W. N. Powell-J. C. Stinson	97	188,211	7,287	6,854	1	3	3P	
St. Benedict's Hospital [1-3]	Ogden, Utah	R. C. Ellis	93	87,735	2,993	1,745	1	1	1P	
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	W. A. Bennett	116	119,133	4,940	3,728	2	4	2P	
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	J. Carlquist	232	244,717	8,810	6,414	1	4	4P	
Holy Cross Hospital [1-3]	Salt Lake City	C. McNeil	105	169,755	5,834	5,083	1	1	2P	
Salt Lake County General Hospital [1]	Salt Lake City	W. Carnes	197	11,332	1,803	1,780	1	4	3A	
Veterans Admin. Hospital [3]	Salt Lake City	O. N. Rambo, Jr.	91	76,259	1,330	1,094	..	1	1A	
University of Vermont Affiliated Hospitals		....	...	......	....	....	..	..	4P	
DeGoesbriand Memorial Hospital [1-4]	Burlington, Vt.	E. Stark	89	49,868	1,735	1,720	1	3	..	
Mary Fletcher Hospital [1-3]	Burlington, Vt.	R. Coon	145	78,101	5,097	4,893	2	8	..	
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	R. E. Miller	66	73,332	1,088	967	1	1	1P	
University of Virginia Hospital [1-3]	Charlottesville, Va.	J. R. Cash-O. B. Bobbitt	228	281,472	10,863	10,863	2	5	4P	
Memorial Hospital [1-3]	Danville, Va.	J. W. Hooker	127	99,037	4,552	4,552	1	4	4P	
Lynchburg General Hospital [1-3]	Lynchburg, Va.	M. Bouton	112	49,674	2,765	2,360	..	1	3P	
Riverside Hospital [1-3]	Newport News, Va.	M. F. Sherrill	70	58,863	3,009	3,009	1	1	1A	
DePaul Hospital [1-3]	Norfolk, Va.	A. F. Strauss	263	207,658	8,001	7,644	1	4	4P	
Norfolk General Hospital [1-3]	Norfolk, Va.	A. J. Rawson-E. D. Levy	214	165,967	9,600	9,050	1	4	4P	
Johnston-Willis Hospital [1]	Richmond, Va.	J. L. Thornton	117	69,244	3,417	3,417	1	1	1A	
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	F. L. Apperly-H. G. Kupfer	457	570,686	9,910	8,924	..	9	4P	
Veterans Admin. Hospital [1-3]	Richmond, Va.	J. R. Kriz	199	217,757	2,348	2,116	1	2	2P	
Doctors Hospital [1-3]	Seattle	G. W. Tooley	150	105,151	6,632	4,864	1	3	2A	
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	C. R. Jensen	668	217,700	3,645	3,261	1	3	4P	
Providence Hospital [1-3]	Seattle	D. G. Mason	188	142,661	6,558	4,177	1	1	2A	
Swedish Hospital [1-3]	Seattle	P. K. Lund	195	152,000	11,942	11,725	1	4	4P	
Veterans Admin. Hospital [1-3]	Seattle	D. V. Brown	240	84,213	1,508	1,456	2	4	3P	[illegible]
Virginia Mason Hospital [1-3]	Seattle	H. W. Jones	185	188,735	6,876	5,566	1	1	4P	
Deaconess Hospital	Spokane, Wash.	T. E. Ludden	198	105,990	4,080	3,252	1	1	3A	[illegible]
Sacred Heart Hospital [3]	Spokane, Wash.	J. Hill-J. D. McCarthy	255	220,725	7,896	7,336	1	2	3A	[illegible]
St. Luke's Hospital [1-3]	Spokane, Wash.	O. O. Christianson	117	134,113	3,082	2,144	1	1	2P	[illegible]
St. Joseph Hospital [1]	Tacoma, Wash.	C. R. McColl	103	9,627	4,781	4,587	2	2	2A	[illegible]
Tacoma General Hospital [1-3]	Tacoma, Wash.	C. P. Larson	142	84,860	9,687	8,635	2	4	4P	[illegible]
Charleston General Hospital [1-3]	Charleston, W. Va.	W. Putschar	132	76,493	3,533	2,659	1	1	3P	[illegible]
Memorial Hospital [1-3]	Charleston, W. Va.	V. E. Martens	128	90,727	3,043	2,695	..	..	2P	[illegible]
St. Mary's Hospital [1-3]	Clarksburg, W. Va.	H. Fischer	125	125,000	2,808	2,700	1	2	2P	
St. Mary's Hospital [3]	Huntington, W. Va.	S. Werthammer	156	237,380	6,703	6,446	1	1	3A	[illegible]
Veterans Admin. Hospital [1-3]	Martinsburg, W. Va.	R. G. Gottschalk	128	201,615	1,278	1,015	1	1	2P	[illegible]
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	H. G. Little	169	106,308	5,612	4,551	2	6	4P	[illegible]
Madison General Hospital [1-3]	Madison, Wis.	L. McGary	218	128,638	6,031	6,031	1	2	4P	[illegible]
University Hospitals [1-3]	Madison, Wis.	W. D. Stovall-D. M. Angevine	358	240,814	5,220	5,172	2	5	4P	[illegible]
Columbia Hospital [1-3-375]	Milwaukee	G. Ritchie	174	79,809	3,649	2,514	1	4	4P	[illegible]
Milwaukee County Hospital [1-3]	Milwaukee	J. H. Lunseth	711	312,127	5,173	4,998	2	8	4P	[illegible]
Milwaukee Hospital [1-3]	Milwaukee	E. A. Birge	147	158,767	6,374	5,590	1	1	4P	[illegible]
St. Joseph's Hospital [1-3]	Milwaukee	C. H. Altshuler	227	185,093	5,642	4,827	1	4	4P	[illegible]
St. Luke's Hospital [1-3]	Milwaukee	B. E. Clarke	210	131,736	4,205	4,204	1	4	4P	[illegible]
St. Mary's Hospital [3-370]	Milwaukee	S. B. Pessin	134	100,731	5,024	3,450	1	3	4P	[illegible]
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	J. M. Lubitz	444	271,361	2,692	2,473	1	3	4P	
Gorgas Hospital [1]	Ancon, Canal Zone	G. E. Cosgrove	253	347,589	2,513	2,513	1	4	4P	[illegible]
Queen's Hospital [1-3]	Honolulu, T. H.	W. H. Civin-P. Tamura	230	168,136	6,308	5,809	1	4	4P	[illegible]
St. Francis Hospital [1-3]	Honolulu, T. H.	R. Chappell	116	121,762	4,978	3,165	2	2	2A	[illegible]
Bayamon District Hospital [1-3]	Bayamon, P. R.	R. Ramirez	356	126,548	2,177	2,167	1	3	4P	[illegible]
San Juan City Hospital [1-3]	San Juan, P. R.	E. Koppisch	172	236,933	3,271	3,268	1	4	3A	

Numerical and other references will be found on pages 556 through 559.

18. PEDIATRICS

Residency programs in the following hospitals have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as offering full training in the specialty: (i. e., TWO or more years).

Hospitals, 250; Assistant Residencies and Residencies, 1,671

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES ARMY							
terman Army Hospital [1-3]	San Francisco	F. Biehusen	1,153	10	2	4	...
zsimons Army Hospital [1]	Denver	M. E. Steinheimer	641	24	2	4	...
ny Medical Center [1-3]	Washington, D. C.	L. J. Geppert	739	35	3	6	...
lliam Beaumont Army Hospital	El Paso, Texas	T. W. Cap	3,573	42	2	6	...
ooke Army Hospital [1-3]	San Antonio, Texas	J. P. Fairchild	896	18	3	6	...
pler Army Hospital [1]	Honolulu, T. H.	O. C. Bruton	1,332	72	3	6	...
UNITED STATES NAVY							
S. Naval Hospital [1-3]	Oakland, Calif.	M. Kurzrok	1,351	11	2	4	...
S. Naval Hospital [1-]	San Diego, Calif.	E. R. Moeller	1,337	24	3	6	...
S. Naval Hospital [1-3]	Bethesda, Md.	T. E. Cone, Jr.	778	..	2	4	...
S. Naval Hospital [1]	Chelsea, Mass.	D. W. Sherwood	601	48	2	4	...
S. Naval Hospital [1]	Philadelphia	W. I. Neikirk	345	6	2	4	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
edmen's Hospital [1-3]	Washington, D. C.	R. B. Scott	504	11	2	5	218
NONFEDERAL							
iversity of Alabama Medical Center							
hildren's Hospital [1-3]	Birmingham, Ala.	C. L. Lamar	3,153	..	2	3	143
niversity Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	K. Hare	1,401	43	6	12	108
yd Noland Hospital [1-3]	Fairfield, Ala.	G. C. McCullough	1,493	7	2	4	225
bile County Hospital [1-3]	Mobile, Ala.	J. H. Baumhauer	839	26	1	1	300
ricopa County General Hospital [1-3]	Phoenix, Ariz.	C. A. Holmes	646	21	..	1	300
Joseph's Hospital [1-3]	Phoenix, Ariz.	J. Kaye	1,207	25	1	2	300
iversity Hospital [1]	Little Rock, Ark.	K. Dodd	2,966	74	4	6	150
rn County General Hospital [1]	Bakersfield, Calif.	A. J. De Fede	1,488	26	2	4	325
n Joaquin General Hospital [1]	French Camp, Calif.	W. T. Auld	773	10	1	2	260
neral Hospital of Fresno County [1-3-56]	Fresno, Calif.	J. P. Conrad	1,433	34	2	4	300
lifornia Babies' and Children's Hospital [1-3]	Los Angeles	T. L. Birnberg	486	3	1	2	200
dars of Lebanon Hospital [1-3]	Los Angeles	B. Kagan	1,347	10	2	4	250
ildren's Hospital [1]	Los Angeles	R. W. Mapes	2,007	52	11	23	150
s Angeles County Hospital [1]	Los Angeles	R. F. Chinnock	4,714	90	8	14	246
een of Angels Hospital [1-3]	Los Angeles	C. Mouton	1,838	12	1	2	200
iversity of California Hospital [1-3]	Los Angeles	J. M. Adams	1,014	..	3	9	198
hite Memorial Hospital [1-3]	Los Angeles	R. F. Chinnock	589	15	2	3	150
ildren's Hospital of the East Bay [1]	Oakland, Calif.	H. Long	7,187	56	6	12	225
ghland-Alameda County Hospital [1]	Oakland, Calif.	M. H. Schwartz	1,374	21	2	3	200
iser Foundation Hospital [1-3]	Oakland, Calif.	A. L. King	626	11	4	6	265
ildren's Hospital [1-3]	San Francisco	H. E. Thelander	919	10	2	4	150
Department of Contagious Diseases		E. B. Shaw	408	6	1	1	150
. Mary's Hospital [1-3]	San Francisco	R. Flood	2,000	3	1	2	150
anford University Hospitals							
San Francisco Hospital [1-3]	San Francisco	E. H. Senz	733	8	3	3	195
University Hospital [1-3]	San Francisco	R. H. Alway	434	21	3	7	80
iversity of California Hospitals							
San Francisco Hospital [1-3]	San Francisco	H. B. Bruyn	690	9	2	2	195
University Hospital [1-3]	San Francisco	W. C. Deamer	807	26	3	7	210
nta Clara County Hospital [1-3]	San Jose, Calif.	R. D. Cutter	469	13	1	2	260
. John's Hospital [1]	Santa Monica, Calif.	A. B. Polson	1,648	9	2	2	200
arbor General Hospital [1-63]	Torrance, Calif.	A. J. Moss	1,363	27	3	6	246
ildren's Hospital [1-3]	Denver	R. O. Sherberg	4,865	84	6	10	200
iversity of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	C. H. Kempe	580	58	7	16	180
Denver General Hospital [1-3]	Denver	E. Plattner	1,221	16	..	..	157
artford Hospital [1-3]	Hartford, Conn.	J. B. Griggs	1,489	38	1	2	100
. Francis Hospital [1-3]	Hartford, Conn.	T. F. Murphy	1,001	13	2	4	125
race-New Haven Community Hospital [1-3-98]	New Haven, Conn.	M. J. [illegible]	870	53	6	10	50
ospital of St. Raphael [3]	New Haven, Conn.	P. F. [illegible]	2,000	26	2	3	150
laware Hospital [1-3]	Wilmington, Del.	R. O. [illegible] Warren	2,286	43	2	4	220
ildren's Hospital [1-3]	Washington, D. C.	R. H. Parrott	3,115	37	13	22	100
istrict of Columbia General Hospital [1-3]	Washington, D. C.	L. Hoeck	2,263	40	5	10	233
orgetown University Hospital [1-3]	Washington, D. C.	F. G. Burke	1,261	31	3	9	175
uval Medical Center [1-3]—St. Vincent's Hospital [1-3]	Jacksonville, Fla.	J. K. David, Jr.-H. Carithers	3,070	31	3	5	150
ckson Memorial Hospital [1-3]	Miami, Fla.	R. B. Lawson	1,754	34	4	8	75
rawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	J. H. Patterson	1,308	25	5	6	285
orgia Baptist Hospital [1-3]	Atlanta, Ga.	J. Yampolsky	3,738	13	2	4	305
rady Memorial Hospital [1-3]	Atlanta, Ga.	R. W. Blumberg	1,057	49	4	10	100
enrietta Egleston Hospital for Children [1]	Atlanta, Ga.	M. H. Roberts	906	18	1	3	150
t. Joseph's Infirmary [1-3]	Atlanta, Ga.	C. D. Fowler	1,491	12	1	2	270
niversity Hospital [1]	Augusta, Ga.	P. Mulherin	1,444	29	3	7	200
ildren's Memorial Hospital [1-3]	Chicago	J. A. Bigler	6,623	88	12	16	75
ook County Hospital [1-3]	Chicago	M. P. Borovsky	8,353	303	8	15	100
Department of Contagious Diseases		A. L. Hoyne	1,127	29	1	1	100
oyola University (Stritch School of Medicine) Affiliated Hospitals							
Mercy Hospital [1-3-30]	Chicago	W. H. Elghammer	1,605	24	4	9	200
chael Reese Hospital	Chicago	J. Metcoff	5,542	137	7	12	125
ount Sinai Hospital [1-3]	Chicago	I. M. Levin	2,841	76	1	2	125
esbyterian Hospital [1-3]	Chicago	C. J. Harrison	1,176	34	2	2	125
ovident Hospital [1-3]	Chicago	C. J. Runner	764	13	1	2	200
t. Luke's Hospital [1-3]	Chicago	A. D. Biggs	471	10	1	2	125
iversity of Chicago Clinics [1-3]	Chicago	F. H. Wright	1,260	64	6	13	200
iversity of Illinois Research and Educational Hospitals [1-3]	Chicago	H. N. Sanford	1,728	57	4	7	125
t. Francis Hospital [1]	Evanston, Ill.	N. G. Shaw	3,221	18	2	3	175
ittle Company of Mary Hospital	Evergreen Park, Ill.	E. G. Lawler	4,601	14	2	4	175
diana University Medical Center							
Indianapolis General Hospital [1]	Indianapolis	H. F. Call	414	8	2	4	205
Indiana University Medical Center Hospital [1]	Indianapolis	L. T. Meiks	1,767	121	5	11	165
Riley Hospital	Indianapolis		.....	..	..	..	...
ethodist Hospital [1]	Indianapolis	P. Hedrick	2,340	18	1	2	278
aymond Blank Memorial Hospital for Children [1-3]	Des Moines, Iowa	L. F. Hill	4,571	53	4	8	175
ate University of Iowa Hospitals [1-3]	Iowa City	C. D. May	1,621	57	4	8	140
iversity of Kansas Medical Center [1-3]	Kansas City, Kan.	H. Miller	1,322	49	4	8	125
t. Joseph Infirmary [1-3]	Louisville, Ky.	J. B. Larson	3,125	19	2	4	210
iversity of Louisville Hospitals							
Children's Hospital [1-3]	Louisville, Ky.	J. A. Little	3,662	..	5	14	83
Louisville General Hospital [1-3-136]	Louisville, Ky.	A. J. Steigman	571	9	4	9	83

Numerical and other references will be found on pages 556 through 559.

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Monthly)
Charity Hospital of Louisiana							
Louisiana State University Unit [1]	New Orleans	R. L. Fowler	2,148	48	9	17	[illegible]
Tulane University Unit [1]	New Orleans	R. V. Platou	2,167	50	9	17	[illegible]
Confederate Memorial Medical Center [1]	Shreveport, La.	C. H. Webb	3,235	35	2	4	[illegible]
Baltimore City Hospital [1-3]	Baltimore	H. E. Harrison	1,361	108	4	6	[illegible]
Johns Hopkins Hospital [1-3]	Baltimore	R. E. Cooke	1,951	121	10	19	[illegible]
Mercy Hospital [1-3]	Baltimore	F. B. Smith	524	11	1	2	[illegible]
Sinai Hospital [1-3]	Baltimore	H. H. Gordon	986	29	4	8	[illegible]
Union Memorial Hospital [1]	Baltimore	C. O'Donovan, Jr.	716	8	2	3	[illegible]
University Hospital [1-3]	Baltimore	J. E. Bradley	786	34	3	7	[illegible]
Boston City Hospital [1-3]	Boston	S. S. Gellis	1,233	90	12	15	[illegible]
Boston Floating Hospital [1-3-165]	Boston	J. M. Baty	2,375	59	..	8	[illegible]
Children's Medical Center [1-3]	Boston	C. A. Janeway	1,585	203	5	35	..
Massachusetts General Hospital [1-3]	Boston	A. M. Butler	1,001	..	10	17	[illegible]
Worcester City Hospital [1-3]	Worcester, Mass.	R. Cox	949	10	2	4	[illegible]
University Hospital [1-3]	Ann Arbor, Mich	J. L. Wilson	1,661	73	11	27	[illegible]
Children's Hospital [1-3]	Detroit	P. V. Woolley, Jr.	6,909	245	12	27	[illegible]
Harper Hospital [1-3-201]	Detroit	E. E. Martmer	1,737	26	4	8	[illegible]
Henry Ford Hospital [1-3]	Detroit	J. A. Johnston	1,571	12	4	8	[illegible]
Hurley Hospital [1-3]	Flint, Mich.	E. M. Eichorn	3,950	23	1	2	[illegible]
Butterworth Hospital [1-3]	Grand Rapids, Mich.	M. Dick	1,203	42	1	2	[illegible]
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich	F. M. Adams	3,664	9	1	2	[illegible]
Saginaw General Hospital [1-3]	Saginaw, Mich.	R. M. Heavenrich	1,909	10	1	2	[illegible]
Minneapolis General Hospital [1-3]	Minneapolis	R. B. Raile	1,099	35	3	4	[illegible]
University of Minnesota Hospitals [1-3]	Minneapolis	J. A. Anderson	2,357	151	10	20	[illegible]
Mayo Foundation [1-3]	Rochester, Minn.	J. W. Du Shane	3,456	50	6	18	[illegible]
University Hospital [1]	Jackson, Miss.	B. Batson	1,104	32	2	4	[illegible]
University of Missouri Medical Center [1-3]	Columbia, Mo	R. L. Jackson	287	11	2	5	[illegible]
Children's Mercy Hospital	Kansas City, Mo.	W. Hart	1,929	49	3	8	[illegible]
Kansas City General Hospital No. 1 [216]	Kansas City, Mo.	G. E. Hughes	765	3	1	2	[illegible]
Homer G. Phillips Hospital [1-3]	St. Louis	P. J. White	2,752	44	6	11	
St. Louis Children's Hospital [1-3]	St. Louis	A. F. Hartmann	4,650	116	16	32	
St. Louis City Hospital [1-3]	St. Louis	V. Peden	2,150	25	4	8	
St. Mary's Group of Hospitals [1-3]	St. Louis	J. P. King	2,457	55	4	8	
Children's Memorial Hospital [1-3]	Omaha	J. L. Gedgoud	4,200	45	4	8	
Creighton Memorial-St. Joseph's Hospital	Omaha	J. H. Murphy	1,931	9	2	4	
Contagious Division of County Hospital							
Omaha Children's Hospital							
Riverview Home							
St. Joseph Orphanage							
University of Nebraska Hospital [1-3-223]	Omaha	G. E. Gibbs	584	15	3	6	
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	C. C. Stewart	955	10	1	2	
Jersey City Medical Center [1-3]	Jersey City, N. J.	B. P. Abrams	1,409	10	3	6	
Fitkin Memorial Hospital [1-3]	Neptune, N. J.	J. F. Raffetto	1,368	10	1	2	
Babies Hospital—Coit Memorial [1-3]	Newark, N. J.	W. Mitchell	3,444	22	2	4	
Newark Beth Israel Hospital [1-3]	Newark, N. J.	A. Heyman	511	13	1	2	
St. Michael's Hospital [1-3]	Newark, N. J.	H. A. Murray	2,991	21	3	5	
St. Francis Hospital [1-3]	Trenton, N. J.	H. Davis	4,336	18	1	1	
Bernalillo County-Indian Hospital	Albuquerque, N. Mex.	O. Syme	993	24	1	3	
Albany Hospital [1-3]	Albany, N. Y.	P. Patterson	989	27	3	5	
Beth-El Hospital [1-3]	Brooklyn, N. Y.	B. Schick	313	41	3	4	
Brooklyn Hospital [1-3]	Brooklyn, N. Y.	T. M. Lamb	578	31	2	4	
Coney Island Hospital	Brooklyn, N. Y.	S. Nussbaum	549	10	1	3	
Cumberland Hospital [1-3]	Brooklyn, N. Y.	J. A. Monfort	837	21	2	1	
Greenpoint Hospital [1-3]	Brooklyn, N. Y.	I. Schiff	621	15	2	3	
Jewish Hospital [1-3]	Brooklyn, N. Y.	J. Pincus	555	20	3	8	
Kings County Hospital Center	Brooklyn, N. Y.	K. G. Jennings-R. L. Day	2,135	52	7	23	
Long Island College Hospital [1-3]	Brooklyn, N. Y.	C. A. Weymuller	530	14	2	3	
Lutheran Medical Center [1-3]	Brooklyn, N. Y.	J. A. Monfort	710	38	1	2	
Maimonides Hospital [1-3]	Brooklyn, N. Y.	B. Kramer	487	11	2	3	
St. Catherine's Hospital [1-3]	Brooklyn, N. Y.	J. P. Lombard	616	1	2	3	
St. John's Episcopal Hospital [1-3]	Brooklyn, N. Y.	B. H. Shulman	933	6	1	2	
Children's Hospital [1-3]	Buffalo	M. I. Rubin	3,425	126	8	21	
Edward J. Meyer Memorial Hospital [1-3]	Buffalo	T. S. Bumbalo	1,067	17	1	3	
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	T. C. Goodwin	320	6	1	1	
Elmhurst General Hospital [1-3-17]	Elmhurst, N. Y.	E. E. Amerman	1,593	33	2	5	
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	E. A. Stanchi	1,731	53	3	6	[illegible]
Queens General Hospital [1-3]	Jamaica, N. Y.	M. Coe	1,314	66	4	7	[illegible]
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	A. Coddington	2,483	7	2	2	[illegible]
North Shore Hospital [1-3]	Manhasset, N. Y.	A. L. Florman	362	3	1	3	[illegible]
Long Island Jewish Hospital [1-3]	New Hyde Park, N. Y.	S. Karelitz	607	24	2	4	[illegible]
Bellevue Hospital Center							
Div. III New York University College of Medicine	New York City	L. E. Holt, Jr.	1,521	82	6	7	[illegible]
Bronx Hospital [1-3]	New York City	J. H. Lapin	650	6	2	3	[illegible]
Bronx Municipal Hospital Center [1-3]	New York City	H. L. Barnett	1,033	13	10	20	[illegible]
Fordham Hospital [1-3]	New York City	J. Golomb	661	13	2	3	[illegible]
Harlem Hospital [1-3]	New York City	H. J. Cohen	863	34	2	4	[illegible]
Lenox Hill Hospital [1-3]	New York City	A. F. Anderson	725	13	1	2	[illegible]
Lincoln Hospital [1-3]	New York City	L. Penn	1,545	122	2	6	[illegible]
Morrisania City Hospital [1-3]	New York City	H. D. Pasachoff	820	76	2	4	[illegible]
Mount Sinai Hospital [1-3]	New York City	H. L. Hodes	2,924	75	5	10	[illegible]
New York Hospital [1-3]	New York City	S. Z. Levine	1,593	119	6	15	[illegible]
New York Infirmary [1-3]	New York City	B. Worcester	311	11	1	2	[illegible]
New York Medical College—Metropolitan Medical Center							
Flower and Fifth Avenue Hospitals	New York City	L. B. Slobody	2,997	41	2	3	..
Metropolitan Hospital [1-3]	New York City	L. B. Slobody	1,546	12	6	12	[illegible]
New York Polyclinic Medical School and Hospital [1-3]	New York City	S. V. Haas	301	2	1	2	[illegible]
New York University—Bellevue Medical Center							
University Hospital	New York City	A. De Sanctis	474	7	3	7	[illegible]
Presbyterian Hospital [1]	New York City	R. McIntosh	4,653	178	8	19	[illegible]
Roosevelt Hospital [1-3-271]	New York City	E. N. Joyner, III	619	4	2	4	[illegible]
St. Clare's Hospital [1-3]	New York City	C. H. O'Regan	471	23	2	3	[illegible]
St. Luke's Hospital	New York City	J. F. Engle	655	14	3	6	[illegible]
St. Vincent's Hospital [1-3]	New York City	A. J. Vignec	3,634	61	5	6	[illegible]
Genesee Hospital [1-3]	Rochester, N. Y.	J. Glaser	1,604	31	1	2	[illegible]
Rochester General Hospital [1-3-230]	Rochester, N. Y.	E. H. Townsend, Jr.	791	43	2	4	[illegible]
St. Mary's Hospital [1-3]	Rochester, N. Y.	R Sommers	2,668	6	1	2	[illegible]
Strong Memorial—Rochester Municipal Hospitals [1-3-281]	Rochester, N. Y.	W. L. Bradford	1,805	68	4	15	[illegible]
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	J. B. Richmond	7,717	78	5	11	[illegible]
Grasslands Hospital [1-3]	Valhalla, N. Y.	D. A. Wilcox	502	12	1	3	[illegible]
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	E. C. Curnen	1,756	56	6	12	[illegible]
Charlotte Memorial Hospital [1]	Charlotte, N. C.	C. Adams	590	8	1	2	[illegible]

Numerical and other references will be found on pages 556 through 559.

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Duke University Hospital [1-3-298]	Durham, N. C.	J. Harris	2,508	87	..	8	102
Watts Hospital [1-3]	Durham, N. C.	A. H. London	793	5	..	1	175
Rex Hospital [1]	Raleigh, N. C.	C. R. Bugg	2,340	..	1	2	350
Babies' Hospital [1-3]	Wilmington, N. C.	J. B. Sidbury	1,851	13	1	2	300
City Memorial Hospital [1-3]	Winston-Salem, N. C.	F. A. Blount	1,549	11	1	2	300
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	W. M. Kelsey	1,749	37	4	8	125
Mary Day Nursery and Children's Hospital [1-3]	Akron, Ohio	N. Miller	3,463	48	9	9	250
University of Cincinnati College of Medicine Hospital Group							
Children's Hospital [1]	Cincinnati	A. A. Weech	....	..	15	24	75
Cincinnati General Hospital [1-3-302]	Cincinnati	A. A. Weech	708	64	..	..	...
Good Samaritan Hospital [1-3]	Cincinnati	R. H. Kotte	2,525	26	1	2	250
City Hospital [1-3]	Cleveland	F. C. Robbins	1,639	56	5	12	162.50
Department of Contagious Diseases			....	..	..	..	...
Cleveland Clinic Hospital [1-3]	Cleveland	R. D. Mercer	1,143	15	2	4	175
St. Luke's Hospital [1-3]	Cleveland	R. G. Hodges	1,020	12	1	2	140
University Hospitals [1-3-306]	Cleveland	W. Wallace	2,754	90	5	12	125
Children's Hospital [1-3]	Columbus, Ohio	E. H. Baxter	3,811	114	8	19	150
University of Oklahoma Hospitals [1-3]	Oklahoma City	H. B. Strenge	1,655	75	3	6	...
Hillcrest Medical Center [1-3]	Tulsa, Okla.	H. Graham	3,140	18	1	2	150
St. John's Hospital [1-3]	Tulsa, Okla.	G. R. Russell	3,791	16	1	2	175
University of Oregon Medical School							
Hospitals and Clinics [1]	Portland, Ore.	A. J. Hill, Jr.	820	43	4	8	100
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa	E. F. Rabe	730	9	1	2	175
Harrisburg Hospital	Harrisburg, Pa.	R. T. Tursky	2,154	41	1	1	250
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	M. Ames	2,503	14	1	2	300
Albert Einstein Medical Center		A. Capper	2,290	6	2	4	150
Northern Division [1-3]	Philadelphia		....	..	..	..	...
Southern Division [1-3]	Philadelphia		....	..	..	..	...
Children's Hospital [1-3]	Philadelphia	J. Stokes, Jr.	6,042	67	9	22	50
Germantown Dispensary and Hospital [1-3]	Philadelphia	J. C. Williams	1,461	6	1	2	175
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	J. A. Ritter	313	9	1	2	...
Hahnemann Medical College and Hospital [1-3]	Philadelphia	C. C. Fischer	1,254	46	4	8	75
St. Luke's and Children's Medical Center [1-3]	Philadelphia	H. A. Agerty	656	10	3	3	125
Hospital of the University of Pennsylvania [1-3]	Philadelphia	P. Gyorgy	660	8	3	7	...
Hospital of the Woman's Medical College							
of Pennsylvania [1-3]	Philadelphia	J. Crump	858	2	1	3	110
Jefferson Medical College Hospital [1-3]	Philadelphia	H. G. Keitel	678	7	2	4	100
Philadelphia General Hospital [3]	Philadelphia	A. McElfresh	5,562	87	4	8	121
Temple University Hospitals							
St. Christopher's Hospital for Children [1-3]	Philadelphia	W. E. Nelson	3,874	..	10	28	50
Temple University Hospital [1-3]	Philadelphia	W. E. Nelson	19	1	..	..	...
Allegheny General Hospital [1]	Pittsburgh	T. O. Elterich	721	20	1	2	200
Health Center Hospitals of the University of Pittsburgh							
School of Medicine	Pittsburgh	E. R. McCluskey	2,296	77	10	21	125
Children's Hospital			....	..	..	..	...
Robert Packer Hospital [1-3]	Sayre, Pa.	D. S. Motsay	2,650	16	1	3	200
Charles V. Chapin Hospital [1-3-181]	Providence, R. I.	M. Adelman	907	8	4	8	150
Rhode Island Hospital [1-3-342]	Providence, R. I	B. Feinberg	1,312	16	3	7	100
Medical College of South Carolina							
Teaching Hospitals [1]	Charleston, S. C.	M. W. Beach	2,738	54	3	6	137
Columbia Hospital of Richland County [1-3]	Columbia, S. C.	J. R. Harvin	4,517	19	1	2	175
City of Memphis Hospitals [1-3]	Memphis, Tenn.	F. T. Mitchell	2,073	74	5	12	125
Le Bonheur Children's Hospital [1-3-344]	Memphis, Tenn.	C. B. Etter	4,831	31	2	3	100
Baptist Hospital [1-3]	Nashville, Tenn.	E. E. Wilkinson	1,467	8	2	3	175
George W. Hubbard Hospital [1-3]	Nashville, Tenn	E. P. Crump	816	7	2	6	125
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	A. Christie	923	34	4	6	50
Driscoll Foundation Children's Hospital [1-3]	Corpus Christi, Texas	C P Jasperson	1,080	65	2	5	200
Children's Medical Center [1-3]	Dallas, Texas	E. Pratt	1,888	38	9	17	150
St. Paul's Hospital [1-3]	Dallas, Texas	D. V. Spegal	2,779	19	2	4	125
University of Texa	lveston, Texas	A. E. Hansen	817	..	6	14	160
Baylor University	s						
Hermann Hospital [1-3]	Houston, Texas	R. J. Blattner	765	18	2	6	100
Jefferson Davis Hospital [1-3]	Houston, Texas	R. J. Blattner	1,501	109	7	13	75
Methodist Hospital [1-3]	Houston, Texas	E. B. Brandes	155	3	2	2	100
Texas Children's Hospital [1-3]	Houston, Texas	R. J. Blattner	6,120	101	2	6	100
St. Joseph's Hospital [1-3]	Houston, Texas	R. D. Lomas	4,353	21	1	2	200
University of Texas Postgraduate School of Medicine Affiliated Hospitals							
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	C. B. Alexander	1,152	47	1	2	150
Santa Rosa Hospital [1-3]	San Antonio, Texas	M. L. Thornton	2,582	41	1	2	250
Salt Lake County General Hospital [1]	Salt Lake City	J. Bosma	727	9	4	14	150
University of Vermont Medical Center							
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	R. Corley	632	23	1	3	180
Mary Fletcher Hospital [1-3]	Burlington, Vt.	R. J. McKay	559	32	2	4	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. W. Waddell, Jr.	715	21	4	5	50
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	L. E. Sutton, Jr.	1,868	50	8	14	75
University of Washington Affiliated Hospitals							
Children's Orthopedic Hospital [1-3]	Seattle	A. Rembe	2,871	95	4	10	160
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	R. A. Aldrich	884	14	2	3	125
Memorial Hospital [1-3]	Charleston, W. Va.	J. Basman	1,086	7	1	2	250
University Hospitals [1-3]	Madison, Wis.		1,054	51	2	6	100
Milwaukee Children's Hospital [1-3]	Milwaukee	G. H. Wegmann	3,499	69	5	10	175
Milwaukee County Hospital [1-3]	Milwaukee	M. G. Peterman	2,499	32	3	5	207
Gorgas Hospital [1]	Ancon, Canal Zone	D. Hirschl	866	5	1	2	345
Kauikeolani Children's Hospital [1-3]	Honolulu, T. H.	I. McQuarrie	3,693	23	3	5	200
Bayamon District Hospital [1-3]	Bayamon, P. R.	Y. O. DeFreeman	1,971	100	1	2	250
San Juan City Hospital [1-3]	San Juan, P. R	A. Ortiz	1912	72	4	8	300

Residency programs in the following hospitals have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as offering training of less than two years' duration, which is integrated with a fully approved training program.

Hospitals, 22; Assistant Residencies and Residencies, 42

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	W. Buerger	2,343	11	1	2	235
San Diego County General Hospital [1-3-75]	San Diego, Calif.	L. E. Reck	1,030	19	1	1	175
Mount Zion Hospital [1-3]	San Francisco	S. J. Robinson	1,140	3	1	1	150
Waterbury Hospital [1]	Waterbury, Conn	J. L. Hetzel	2,284	5	1	2	225
Variety Children's Hospital	Miami, Fla.	G. Antell	982	17	..	..	...
Grant Hospital [1]	Chicago	D. H. Welker	758	2	1	1	225
Illinois Masonic Hospital [1-3]	Chicago	M. R. Jackson	1,629	7	3	3	115
Evanston Hospital [1-3]	Evanston, Ill.	A. L. Newcomb	1,406	9	1	1	225
Hotel Dieu [1-3-45]	New Orleans	E. A. Socola	2,045	5	2	3	225
Southern Baptist Hospital [1-3]	New Orleans	B. C. Mason	2,264	24	1	2	225

Numerical and other references will be found on pages 556 through 559.

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Herman Kiefer Hospital [1-3-15]	Detroit	D. C. Young	1,419	15	3	3	50
St. Peter's Hospital [1-3-231]	Albany, N. Y.	H. F. Leahy	1,595	7	..	2	25
Wyckoff Heights Hospital [1-3-258]	Brooklyn, N. Y.	V. Larkin	2,110	23	2	4	100
Flushing Hospital and Dispensary [1-3-254]	Flushing, N. Y.	H. T. Vogel	4,461	45	1	2	175
Mary Immaculate Hospital [3]	Jamaica, N. Y.	A. A. Trivillino	2,429	21	1	1	150
St. Francis Hospital [1-3-277]	New York City	D. J. Dolan	664	7	2	3	125
Mercy Hospital [1-3]	Toledo, Ohio	J. J. Tansey	728	15	1	1	225
Greenville General Hospital [1-3]	Greenville, S. C.	W. DeLoache	1,212	18	..	1	225
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	P. Holliday	3,221	47	4	5	225
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	G. S. Lovejoy	1,590	9	..	..	...
St. Joseph Hospital [1-3-244]	Memphis, Tenn.	H. Jacobson	1,361	5	1	2	250
De Paul Hospital [1-3]	Norfolk, Va.	W. M. Fink	2,231	17	1	2	200

Residency programs in the following hospitals have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as offering training of one years' duration which is in the process of being integrated with a fully approved program. Approval for one year of training has been granted up to June 30, 1958. Continued approval will be contingent upon evaluation of surveys being carried out prior to that date.

Hospitals, 5; Assistant Residencies and Residencies, 7

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
NONFEDERAL							
Central Maine General Hospital [1]	Lewiston, Maine	H. C. Thacher	1,136	16	1	1	25
Cooper Hospital [1-3]	Camden, N. J.	V. Del Duca	833	28	..	..	83
Methodist Hospital [1-3]	Brooklyn, N. Y.	W. R. Coles	1,163	23	1	2	175
St. Mary's Hospital [1-3]	Brooklyn, N. Y.	A. G. Stigliano	958	4	1	2	200
Misericordia Hospital	New York City	F. Castrovinci	495	4	1	2	100

19. PHYSICAL MEDICINE AND REHABILITATION

Residency programs in the following hospitals have been approved by the Council and the American Board of Physical Medicine and Rehabilitation, through the Residency Review Committee for Physical Medicine and Rehabilitation, as offering acceptable training in the specialty.

Hospitals, 66; Assistant Residencies and Residencies, 226

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1-3]	San Francisco	W. Moore, Jr.	2,348	127,052	1	3	3	...
Fitzsimons Army Hospital [1]	Denver	J. W. Thomas	5,579	201,212	1	3	3	...
Army Medical Center [1-3]	Washington, D. C.	A. F. Mastellone	4,012	160,672	1	3	3	...
NONFEDERAL AND VETERANS ADMINISTRATION								
Los Angeles County Hospital [1]	Los Angeles	E. Austin	26,158	......	1	2	3	246
Veterans Admin. Hospital [1-3]	Los Angeles	......	7,644	97,164	2	6	3	...
White Memorial Hospital [1-3]	Los Angeles	F. B. Moor	6,459	24,426	1	3	3	150
Veterans Admin. Hospital [1-3]	Oakland, Calif.	C. E. Chapman	1,923	120,715	1	3	3	...
University of California Hospital [1-3]	San Francisco	L. Elsing	12,420	17,643	..	..	3	...
Kaiser Foundation Hospital	Vallejo, Calif.	......	......	......	..	..	1	...
California Rehabilitation Center		S. Mead	......	......	..	..	..	265
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	J. W. Gersten	2,500	26,071	2	6	3	180
Veterans Admin. Hospital [1-3]	Denver	C. C. Hoffman	1,359	40,051	1	1	3	...
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	T. F. Hines	1,241	36,607	1	3	3	50
State of Connecticut Veterans Home and Hospital	Rocky Hill, Conn.	W. T. Liberson	636	66,592	2	3	3	...
District [illegible] General Hospital [1-3]	Washington, D. C.	J. Buchanan	3,422	48,849	1	3	3	233
Georget[illegible]al [1-3]	Washington, D. C.	C. D. Shields	693	7,545	2	2	1	250
George W[illegible]y Hospital [1-3]	Washington, D. C.	C. Wise	2,960	16,113	1	2	3	150
Georgia Warm Springs-Emory University								
[illegible] [1-3]	Warm Springs, Ga.	R. L. Bennett	2,960	151,361	2	6	3	300
[illegible]tch School of Medicine) Affiliated Institutions								
[illegible]rtment of Welfare Convalescent Home	Chicago	A. A. Rodriques	207	15,624	1	3	3	...
[illegible]y Medical Center [1-3]	Chicago	B. Boynton	16,735	39,824	2	6	3	...
Veterans Admin. Research Hospital [1]	Chicago	L. B. Newman	989	43,680	2	2	3	...
Institute of Physical Medicine and Rehabilitation [1-31]	Peoria, Ill.	......	1,606	27,829	2	2	3	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	D. Rose	2,242	50,278	1	3	3	125
Veterans Admin. Hospital [1]	Kansas City, Mo.	R. R. Beatty	3,192	35,445	..	..	..	...
University of Louisville Medical Center [1-3]	Louisville, Ky.	R. McMorris	530	31,398	3	3	3	...
Massachusetts General Hospital [1-3]	Boston	A. L. Watkins	24,676	......	2	2	3	67
Veterans Admin. Hospital [1-3-162]	Boston (Jamaica Plain)	F. Friedland	2,604	134,952	1	3	3	...
University Hospitals [1-3-160]	Ann Arbor, Mich.	J. W. Rae, Jr.	3,825	36,099	2	6	3	150
University of Minnesota Hospitals [1-3]	Minneapolis	F. J. Kottke	2,812	89,147	3	11	3	300
Mayo Foundation [1-3]	Rochester, Minn.	F. H. Krusen	17,066	96,900	3	9	3	175
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	T. P. Anderson	12,747	26,240	1	2	3	215
Veterans Admin. Hospital [1-3]	East Orange, N. J.	C. Brooke	1,784	5,352	1	1	3	...
Veterans Admin. Hospital [1-3]	Albany, N. Y.	J. Ehrlich	5,251	110,621	1	3	3	...
Jewish Chronic Disease Hospital [1-3]	Brooklyn, N. Y.	J. B. Rogoff	4,592	64,433	2	6	3	175
Elmhurst General Hospital [1-3-17]	Elmhurst, N. Y.	J. Sokolow	927	11,460	2	3	1	104
Bellevue Hospital Center								
Div. III-New York University College of Medicine [203]	New York City	H. Rusk	243	30,177	4	13	3	69
Bronx Municipal Hospital Center [1-3]	New York City	A. S. Abramson	5,256	40,960	2	5	3	165
Goldwater Memorial Hospital [1-3-272]	New York City	M. Dacso	866	114,707	2	5	3	104
Hospital for Joint Diseases [1-3]	New York City	A. S. Russek	24,799	36,249	1	1	1	69
Montefiore H[illegible]ital [1-3]	New York City	K. Harpuder	330	5,107	1	2	2	157
Mount Sina[illegible]	New York City	W. Bierman	12,349	46,508	1	1	3	75
N[illegible]politan Medical Center								
[illegible] Hospital and Home [1-3]	......	......	......	......	..	..	3	...
[illegible] [1-3]	New York City	J. S. Tobis	1,075	91,870	2	11	..	157
[illegible]	New York City	J. S. Tobis	3,716	33,193	1	3	..	104
Presbyterian Hospital	New York City	R. C. Darling	46,623	166,466	1	3	3	300
St. Luke's Hospital	New York City	R. Muller	934	125,835	1	1	1	100
Veterans Admin. Hospital [1-3]	New York City (Bronx)	A. Ebel	4,111	338,604	3	4	3	...
Veterans Admin. Hospital [1-3]	New York City (Manhattan)	B. Stoll	1,772	140,989	2	4	3	...
City Hospital [1-3]	Cleveland	N. Coyne	21,844	33,411	1	3	1	162.5
Cleveland Clinic Hospital [1-3]	Cleveland	P. A. Nelson	5,146	28,728	1	3	3	175
Highland View-Cuyahoga County Hospital [1-3]	Cleveland	M. Peszczynski	5,500	90,000	3	6	3	130
Veterans Admin. Hospital [1-3]	Cleveland	B. B. Sutton	1,391	86,433	1	2	1	...
Ohio State University Hospitals								
University Hospital [1-3]	Columbus, Ohio	R. E. Worden	21,989	49,053	2	6	3	177
Veterans Admin. Hospital [1-3]	Dayton, Ohio	L. Rosenberg	1,279	69,660	2	2	1	...

Numerical and other references will be found on pages 556 through 559.

19. PHYSICAL MEDICINE AND REHABILITATION—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3]	Oklahoma City	E. M. George	1,512	61,092	2	2	3	...
Veterans Admin. Hospital [1-3]	Portland, Ore.	E. W. Fowlks	2,982	154,046	..	1	3	...
Hospital of The University of Pennsylvania [1-3]	Philadelphia	W. Erdman	2,136	24,239	2	6	3	...
Philadelphia General Hospital [3]	Philadelphia	A. Martucci	10,849	141,860	1	3	3	121
Veterans Admin. Hospital [1-3]	Philadelphia	R. A. Schlesinger	974	47,483	1	2	3	...
Veterans Admin. Hospital [1-3]	Pittsburgh	S. Machover	5,772	98,798	1	2	2	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	F. J. Schaffer	2,547	106,100	1	2	3	...
Baylor University Hospital [1-3]	Dallas, Texas	E. Krusen	32,918	100,866	1	3	3	160
Gonzales Warm Springs Foundation Hospital for Crippled Children [1-3]	Gonzales, Texas	O. F. Von Werssowetz	1,768	78,611	2	4	1	200
Baylor University College of Medicine Affiliated Hospitals								
Veterans Admin. Hospital [1-3]	Houston, Texas	L. A. Leavitt	9,210	150,432	2	6	3	...
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	H. W. Park	3,402	74,294	2	6	3	75
Veterans Admin. Hospital [1-3]	Richmond, Va.	A. R. Dawson	4,260	243,816	1	3	3	...
Veterans Admin. Hospital [1-3]	Milwaukee, (Wood), Wis.	R. Piaskoski	3,834	225,927	1	1	3	...
Veterans Admin. Hospital [1-3]	San Juan, P. R.	H. J. Flax	549	7,616	2	2	1	...

20. PLASTIC SURGERY

Residency programs in the following hospitals have been approved by the Council, the American Board of Plastic Surgery and the American College of Surgeons, through the Residency Review Committee for Plastic Surgery, as offering acceptable training in the specialty.

Hospitals, 47; Assistant Residencies and Residencies, 109

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Brooke Army Hospital [1-3]	San Antonio, Texas	J. H. Tenery	331	..	1	2	..	...
NONFEDERAL AND VETERANS ADMINISTRATION								
University of California Hospital [1-3]	Los Angeles	R. W. Bailey	698	7,000	2	5	3	198
Veterans Admin. Hospital [1-3]	Los Angeles	G. Webster	263	..	1	1	1	...
Franklin Hospital [1-3]	San Francisco	H. M. Blackfield	277	1	1	2	2	200
St. Francis Memorial Hospital [1-3]	San Francisco	G. W. Pierce	777	..	1	2	2	300
University of Illinois Affiliated Hospitals		P. W. Greeley	...	..	..	..	3	...
Research and Educational Hospitals [1-3]	Chicago		184	..	..	1	..	250
St. Luke's Hospital [1-3]	Chicago		268	1	1	1	..	125
Veterans Admin. Hospital [1]	Hines, Ill.		160	2	1	1	..	...
Indiana University Medical Center [1]	Indianapolis	H. M. Trussler	458	4	..	2	2	215
University of Kansas Medical Center [1-3]	Kansas City, Kan.	D. Robinson	552	6	1	2	2	125
Johns Hopkins Hospital [1-3]	Baltimore	M. T. Edgerton	Incl. in Surgery		..	3	2	150
St. Joseph's Mercy Hospital [1]	Ann Arbor, Mich.	R. O. Dingman	377	..	..	2	2	...
Henry Ford Hospital [1-3]	Detroit	R. H. Clifford	Incl. in Surgery		2	4	2	225
Mayo Foundation [1-3]	Rochester, Minn.	J. B. Erich	3,157	3	2	8	3	175
University Hospital [1]	Jackson, Miss.	J. Hendrix	99	1	..	1	3	250
Barnes Hospital [1-3]	St. Louis	J. B. Brown	1,156	6	4	8	2	75
St. Mary's Group of Hospitals [1-3]	St. Louis	F. X. Paletta	586	2	1	3	2	120
Dartmouth Medical School Affiliated Hospitals		R. C. Tanzer	258	4	1	2	..	273
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.		...	..	..	..	..	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt		...	..	..	..	..	...
Hospitals of Saint Barnabas, and for Women and Children [1]	Newark, N. J.	L. A. Peer	751	1	..	2	2	200
Albany Hospital [1-3]	Albany, N. Y.	B. Macomber	561	3	1	2	2	160
St. Peter's General Hospital	Albany, N. Y.		...	..	..	..	..	...
Veterans Admin. Hospital	Albany, N. Y.		...	..	..	..	..	...
Kings County Hospital Division I [1-3]	Brooklyn, N. Y.	G. O'Brien	757	7	1	2	2	104
Roswell Park Memorial Hospital [1-3-16]	Buffalo	F. S. Hoffmeister	440	18	..	1	..	300
Beth Israel Hospital [1-3]	New York City	A. J. Barsky	299	..	1	2	2	140
Columbia Presbyterian Medical Center			...	..	..	..	3	...
Francis Delafield Hospital [1-3]	New York City	G. H. Humphreys, II	114	..	..	1	..	105
Presbyterian Hospital [1]	New York City	T. W. Stevenson	Incl. in Surgery		2	4	..	368
New York Hospital [1-3]	New York City	H. Conway	490	..	1	2	3	266
Veteran's Admin. Hospital [1-3-260]	New York City (Bronx)	H. Conway	248	..	1	3	2	...
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	R. McCormack	375	..	1	2	2	117
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	L. E. Sutton	280	..	..	2	2	233
Duke University Affiliated Hospitals		K. L. Pickrell	...	..	..	..	3	...
Duke Hospital [1-3]	Durham, N. C.		1,078	7	2	6	..	127
Veterans Admin. Hospital [1-3]	Durham, N. C.		338	3	..	..	..	...
Ohio State University Hospitals								
University Hospital [1-3]	Columbus, Ohio	B. C. Martin	317	..	..	3	2	202
University of Oklahoma Hospitals [1-3]	Oklahoma City	J. F. Burton	266	8	1	2	2	...
Allentown Hospital [1-3]	Allentown, Pa.	K. M. Marcks	706	..	1	1	2	225
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	P. C. Iverson-A. Von Deillen	187	2	1	1	2	100
Health Center Hospitals of the University of Pittsburgh								
School of Medicine	Pittsburgh	S. M. Dupertius	1,703	8	3	6	2	175
Presbyterian-Women's Hospital	Pittsburgh		...	..	..	..	..	...
Veterans Admin. Hospital [1-3]	Pittsburgh		728	7	..	..	..	...
Baylor University Hospital [1-3]	Dallas, Texas	J. T. Mills	733	..	2	2	2	195
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	T. G. Blocker, Jr.	809	54	2	5	3	160
Baylor University Medical College of Medicine Affiliated Hospitals			...	..	..	..	2	...
Jefferson Davis Hospital [1-3-254]	Houston, Texas	S. B. Hardy	211	6	2	3	..	125
Methodist Hospital [1-3]	Houston, Texas	S. B. Hardy	265	..	..	..	..	100
Texas Children's Hospital [1-3]	Houston, Texas	T. D. Cronin	82	..	..	..	..	...
Veterans Admin. Hospital [1-3]	Houston, Texas	S. B. Hardy	186	1	..	2	..	...
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	T. R. Broadbent	478	..	..	1	2	275
University Hospitals [1-3]	*Madison, Wis.*	W. *Slaughter*	137	1	1	2	2	100

21. PREVENTIVE MEDICINE

AVIATION MEDICINE

The following programs in Aviation Medicine have been approved by the Council and the American Board of *Preventive Medicine*, through the Residency Review Committee for Preventive Medicine, as offering acceptable training in the specialty.

School	Location	Director		Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES AIR FORCE					
Wright-Patterson Air Force Base	Dayton, Ohio	W F Hall	For information regarding program, write to Chief, Medical Division Office Surgeon General, U S A F, Washington 25, D C	1	
School of Aviation Medicine	Randolph Field, Texas	O O Benson, Jr	For information regarding program, write to Chief, Medical Division Office Surgeon General, U S A F, Washington 25, D C		
UNITED STATES NAVY					
School of Aviation Medicine	Pensacola, Fla	J C. Early-A Graybiel	For information regarding program, write to Director, Graduate Medical Training Bureau of Medicine and Surgery, U S Navy, Washington 25, D C	2	
NONFEDERAL					
Ohio State University Medical Center	Columbus, Ohio	W F Ashe		3	3

OCCUPATIONAL MEDICINE

The following educational institutions have been approved by the Council and the American Board of Preventive Medicine, through the Residency Review Committee for Preventive Medicine, for THREE years of training in Occupational Medicine. The academic portion of these residencies will be given in the institutions listed. *The inplant training is being arranged. For further detailed information concerning a program, it is suggested that the applicant write to the physician in charge of the particular program concerned.*

	Location	Physician in charge
University of Rochester School of Medicine and Dentistry	Rochester, N Y	J H Sterner
University of Cincinnati Institute of Industrial Health, College of Medicine	Cincinnati	R A Kehoe
Ohio State University Medical Center, Department of Preventive Medicine	Columbus, Ohio	W F Ashe
University of Pittsburgh, Graduate School of Public Health	Pittsburgh	A G Kammer

PUBLIC HEALTH

Residency programs in Public Health in the following states have been approved for TWO years of training by the Council and the *American Board of Preventive Medicine, through the Residency Review Committee for Preventive Medicine.*

Department of Health	Location	Director	Local Areas	Population	Stipend (Month)
State of California	Berkeley	M H Merrill	San Diego County (a)	876,000*	$481
State of Delaware	Dover	F I Hudson	Kent and New Castle Counties (b)	190,000*	$400-460
State of Florida	Jacksonville	W T Sowder	Alachua County	65,900*	$500 (c)
			Dade Miami	757,700*	
			Hillsborough-Tampa	332,600*	
			Pinellas St Petersburg	235,700*	
State of Illinois	Springfield	R R Cross	Cook County (d) (e)	743,988	$410-460
			Peoria (City) and Peoria County (e) (o)	174,347	
			Will County (e)	134,366	
State of Kansas	Topeka	T R Hood	Kansas City-Wyandotte	189,000	(f) (r)
			Topeka Shawnee	115,006	
			Wichita Sedgwick	297,388	
State of Maryland	Baltimore	E Davens	Anne Arundel County	171,700*	$411
			Baltimore City	974 000*	
			Baltimore County	370,400*	
			Montgomery County	256,500*	
			Washington County	85,700*	
State of Michigan	Lansing	A L Heustis	Calhoun County	123,230	$400
			Detroit	1,966,270	
			Michigan Dept of Health	(m)	
State of Minnesota	Minneapolis	R N Barr, Secy and Ex Off	Minneapolis City	542 000*	$400
			Olmstead-Rochester	48,395	
			(n)		
New York City	New York City	R P Kandle, Dep Com		8,010,000	$443
State of New York	Albany	H E Hilleboe	(l)	941,000	$475
State of North Carolina	Raleigh	J W R Norton	Charlotte Mecklenburg County	225,321	$417
			Forsyth Winston Salem	158,422	
			Halifax	59,539	
			Orange Pearson Chatham Lee	117,797	
			Pitt	65,377	
State of Oregon	Portland	H M Erickson	Multnomah County	119 720*	$300 (f)
State of Texas	Austin	F C Kluth	(g)	596 163*	$400 (f)
State of Virginia	Richmond	M I Shanholtz	Arlington County	163 000*	$270
State of Washington	Seattle	B Bucove	*Bremerton* Kitsap		$460
			Clark Skamania	91,100*	
			King Seattle	818 700*	
			Spokane City		
			Tacoma-Pierce		

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* Estimated

(a) Two other local departments not yet selected

(b) Excludes the city of Wilmington

(c) To those planning to work in state; transportation costs only to others

(d) Excludes Berwyn, Chicago, Evanston, Oak Park, Stickney Township, and Winnetka (including *Glencoe*, Kenilworth, Northbrook, and *remainder of* New Trier Township), all with full time health *officers*

(e) Assistance can be arranged *for securing the* MPH degree in the midst of, or after completion of, residency experience *Appointments* normally are limited to those training for service in Illinois Exceptions may be made in *special cases*

Numerical and other references will be found on pages 556 through 559.

(f) Arrangements for remuneration made on an individual basis.

(g) 42 city-county or county health departments and 5 city health departments in which training may be given depending upon local conditions and the needs and desires of the resident.

(h) Training is given in a combination of one county, one union health, and seven municipal health departments and in the divisions of the State Department of Health.

(i) Assistance can be arranged for securing the MPH degree after successful completion of residency experience. Appointments will be limited to those training for service in Oregon.

(j) Excludes Detroit and Dearborn, each with full-time health officers.

(k) To those training for service in Minnesota only.

(l) Training is given in any one of 10 city health departments, 16 county health departments, or 15 district offices within the state.

(m) Training to be with Michigan Department of Health, with field experience in local health departments.

(n) Includes training at Montefiore Hospital.

(o) Training is given under one director in both the City and County Health Departments.

(p) Stipend offered only to those residents who plan to remain in public health work in the state at least six years.

(r) Arrangements for remuneration made upon determination of field of interest and location desired.

22. PROCTOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Proctology, through the Residency Review Committee for Proctology, as offering acceptable training in the specialty.

Hospitals, 13; Assistant Residencies and Residencies, 33

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
NONFEDERAL								
White Memorial Hospital [1-3]	Los Angeles	H. M. Young	289	1	1	2	2	150
Ochsner Foundation Hospital [1]	New Orleans	M. O. Hines	295	2	1	2	2	275
Ferguson, Droste, Ferguson Hospital [1]	Grand Rapids, Mich.	J. A. Ferguson	2,115	22	2	4	2	275
University of Minnesota Hospitals [1-3]	Minneapolis	W. A. Fansler	Incl. in Surgery		1	1	2	185
Mayo Foundation [1-3]	Rochester, Minn.	R. J. Jackman	824	..	2	8	2	175
Buffalo General Hospital [1-3]	Buffalo	L. S. Knapp	620	3	1	2	2	175
Millard Fillmore Hospital [1-3]	Buffalo	W. H. Bernhoft	279	1	1	1	2	285
Youngstown Hospital [1-3]	Youngstown, Ohio	P. J. Fuzy, Jr.	729	6	1	2	2	175
Allentown Hospital [1-3]	Allentown, Pa.	M. S. Kleckner	773	3	1	1	2	225
Temple University Hospital [1-3]	Philadelphia	H. E. Bacon	670	4	2	4	2	...
Health Center Hospitals of The University of Pittsburgh School of Medicine								
Presbyterian Hospital	Pittsburgh	K. Zimmerman	901	1	1	2	2	175
Baylor University Hospital [1-3]	Dallas, Texas	C. Rosser	869	1	1	2	2	195
Milwaukee County Hospital [1-3]	Milwaukee	L. J. Schwade	393	4	1	2	2	207

23. PSYCHIATRY

Residency programs in the following hospitals have been approved for THREE years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (*Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level—see summary of requirements American Board of Psychiatry and Neurology, Inc., page 594.*)

Hospitals, 170; Assistant Residencies and Residencies, 2,602

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1-3]	San Francisco	O. Weaver	694	..	6	18	12	...
Fitzsimons Army Hospital [1]	Denver	P. B. Smith	477	..	6	18	..	...
Army Medical Center [1-3]	Washington, D. C.	R. E. Clausen, Jr.	1,037	3	8	24	..	...
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Bethesda, Md.	J. E. Nardini	237	..	4	12	..	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-135]	Lexington, Ky.	J. A Grider	3,316	10	4	12	30	...
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	E. Y. Williams	235	..	2	2	..	218
St. Elizabeths Hospital [1-3]	Washington, D. C.	W. Overholser	8,223	315	9	24	20	308
NONFEDERAL AND VETERANS ADMINISTRATION								
University of Alabama Medical Center								
Children's Hospital [1-3]	Birmingham, Ala.	E. L. Caveny	.....	..	..	..	..	...
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	E. L. Caveny	550	..	2	5	..	250
Veterans Admin. Hospital [1]	Birmingham, Ala.	J. R. Jarvis	322	1	..	..	..	...
University of Arkansas Affiliated Hospitals								
Veterans Admin. Hospital [1]	No. Little Rock, Ark.	E. S. Chappell	3,089	30	4	12	49	...
Camarillo State Hospital [1]	Camarillo, Calif.	F. H. Garrett	9,592	154	4	12	..	395
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	M. Feld	695	..	1	3	..	...
Los Angeles County Hospital [1]	Los Angeles	E. Stainbrook	10,371	36	6	10	..	246
University of California Hospital [1-3]	Los Angeles	N. Q. Brill	62	1	8	20	..	198
Veterans Admin. Hospital [1-3-65]	Los Angeles	J. T. Ferguson	3,641	141	18	54	11	...
Metropolitan State Hospital [1-3-67]	Norwalk, Calif.	R. E. Wyers	3,770	49	6	18	15	584
Veterans Admin. Hospital [1-3-71]	Palo Alto, Calif.	H. D Von Witzleben	2,234	21	10	28	14	...
Langley-Porter Clinic [1-80]	San Francisco	A. Simon	322	600	9	44	13	200
Stanford University Hospitals [1-3]	San Francisco	G. S. Johnson	356	..	2	6	..	80
Veterans Admin. Hospital [1-3]	Sepulveda, Calif.	N. C. Mace	1,039	21	6	10	..	...
University of Colorado Medical Center								
Colorado Psychopathic Hospital [1-3]	Denver	H. S. Gaskill	734	2	12	40	16	216
Veterans Admin. Hospital [1-3-57]	Denver	L. L. Woodfin	631	..	4	8	..	...
Connecticut State Hospital [1-3]	Middletown, Conn.	H. S. Whiting	4,450	100	8	20	..	440
Institute of Living	Hartford, Conn.	F. J. Braceland	975	1	8	16	..	333
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	T. Lidz	39	..	..	14	17	75
Fairfield State Hospital [1-3]	Newtown, Conn.	J. E. Oltman	2,815	170	9	22	..	440
Norwich State Hospital [1-3]	Norwich, Conn.	R. H. Kettle	4,681	57	8	25	..	440
Veterans Admin. Hospital [1-3-102]	West Haven, Conn.	E. B. Brody	528	2	12	27	15	...
Delaware State Hospital [1-3]	Farnhurst, Del.	M. A. Tarumianz	1,386	57	4	14	19	200

Numerical and other references will be found on pages 556 through 559.

23. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Monthly)
Georgetown University Hospital [1-3]	Washington, D. C.	G. N. Raines	....	..	8	28	..	175
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. M. Caldwell	1,011	5	5	15	..	175
University Hospital [1]	Augusta, Ga.	H. Cleckley	692	1	3	5	..	250
Veterans Admin. Hospital [1-3-115]	Augusta, Ga.	M. Dunn	2,156	30	1	1	21	...
Chicago State Hospital [1-3]	Chicago	K. Gyarfas	7,080	83	25	50	23	300
Cook County Hospital [1-3]	Chicago	R. C. Hamill	7,844	10	3	5	..	250
Michael Reese Hospital	Chicago	R. R. Grinker, Sr.	760	..	5	15	..	100
Mount Sinai Hospital [1-3]	Chicago	I. Finkelman	441	2	1	2	..	125
Northwestern University Medical Center [1-3-396]	Chicago	B. Boshes	4,587	89	20	38	..	250
Chicago Wesley Memorial Hospital [1-3]	Chicago	B. Boshes	586	..	1	1	..	125
Veterans Admin. Hospital [1-120]	Downey, Ill.	A. Paunez	3,557	86	20	38	26	...
Presbyterian Hospital	Chicago	L. W. Avery	675	..	..	1	3	125
St. Luke's Hospital [1-3]	Chicago	F. J. Gerty	363	5	1	3	22	125
Stritch School of Medicine Affiliated Hospitals								
Loretto Hospital [1-3]	Chicago	J. J. Madden	575	3	..	..	..	200
Mercy Hospital [1-3-119]	Chicago	J. J. Madden	310	1	3	9	..	200
University of Chicago Clinics [1-3]	Chicago	C. K. Aldrich	141	1	3	10	..	250
University of Illinois Neuropsychiatric Institute [1-3]	Chicago	F. J. Gerty	194	..	4	11	27	125
Veterans Admin. West Side Hospital [1-3]	Chicago	L. Halperin	398	3	3	6	..	..
Veterans Admin. Hospital [1]	Hines, Ill.	L. Jensen	668	4	4	14	25	...
Indiana University Affiliated Hospitals								
Indianapolis General Hospital [1-124]	Indianapolis	D. Schuster	559	5	1	3	28	225
Indiana University Medical Center Hospital [1-395]	Indianapolis	J. I. Nurnberger	....	..	12	39	28	325
Veterans Admin. Hospital [1-3]	Indianapolis	E. J. Fogel	639	..	..	..	..	...
Iowa State Psychopathic Hospital [1-3]	Iowa City	P. E. Huston	336	1	4	12	..	276
University of Kansas Medical Center [1-3]	Kansas City, Kan.	W. Roth, Jr.	117	..	3	8	..	...
Veterans Admin. Hospital	Kansas City, Mo.	W. E. Olson	176	..	..	..	..	...
C. F. Menninger Memorial Hospital [1-3]	Topeka, Kan.	K. A. Menninger	249	..	..	7	29	300
Topeka State Hospital [1-3-131]	Tokepa, Kan.	P. E. Feldman	1,817	52	22	60	29	300
Veterans Admin. Hospital [1-3-132]	Topeka, Kan.	F. F. Merker	1,937	16	22	58	29	237
University of Louisville Hospitals								
Central State Hospital [1-3]	Lakeland, Ky.	W. Fox	3,118	7	3	3	..	200
Veterans Admin. Hospital [1-3]	Lexington, Ky.	See listing of this hospital in Following Section.						
Louisville General Hospital [1-3]	Louisville, Ky.	W. K. Keller	977	3	1	3	..	200
Norton Memorial Infirmary [1-3]	Louisville, Ky.	S. S. Ackerly	273	1	..	4	..	250
Veterans Admin. Hospital [1-3]	Louisville, Ky.	A. Gulgha	343	..	1	3	32	...
Charity Hospital of Louisiana								
Louisiana State University Unit [1]	New Orleans	C. Watkins	915	5	4	12	35	100
Tulane University Unit [1]	New Orleans	R. G. Heath	753	3	4	12	34	100
Johns Hopkins Hospital [1-3]	Baltimore	J. C. Whitehorn	223	..	4	18	36	170
University Hospital [1-3]	Baltimore	J. E. Finesinger	488	2	5	15	..	75
Spring Grove State Hospital [1-3]	Catonsville, Md.	I. Tuerk	4,838	92	11	20	..	317
Veterans Admin. Hospital [1-3-158]	Perry Point, Md.	W. M. Harris	2,343	46	3	10	37	...
Sheppard and Enoch Pratt Hospital [1-3]	Towson, Md.	H. M. Murdock	527	2	5	12	..	317
Boston State Hospital [1-3]	Boston	J. Mann	4,497	113	16	30	..	250
Massachusetts Memorial Hospitals [1-3-175]	Boston	W. Malamud	....	1,736	..	13	38	250
Massachusetts Mental Health Center [1]	Boston	H. C. Solomon	850	1	16	35	..	250
Veterans Admin. Hospitals of the Boston Area								
Veterans Admin. Hospital [1-3-161]	Bedford, Mass.	A. H. Braverman	2,181	22	7	9	39	...
Veterans Admin. Hospital [1-3-184]	Boston (Jamaica Plain)	S. Tartakoff	853	2	10	50	..	...
Veterans Admin. Hospital [1-3]	Brockton, Mass.	A. S. Mason	1,430	20	6	6	..	...
Worcester State Hospital [1-3]	Worcester, Mass.	S. Kligerman	3,207	80	7	21	..	255
University Hospital [1-3-189]	Ann Arbor, Mich.	R. W. Waggoner	687	..	12	41	..	321
Henry Ford Hospital [1-3]	Detroit	L. D. Proctor	388	2	1	5	41	333
Lafayette Clinic [1-3]	Detroit	J. S. Gottlieb	195	..	12	38	..	341
Receiving Hospital [1-3]	Detroit	J. M. Dorsey	6,003	35	1	5	44	250
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	J. A. Belisle	4,795	24	4	11	10	352
Northville State Hospital [1-3]	Northville, Mich.	G. R. Forrer	2,413	43	6	18	..	341
Pontiac State Hospital [1-3]	Pontiac, Mich.	I. A. La Core	3,761	81	8	20	10	341
Ypsilanti State Hospital [1-3-197]	Ypsilanti, Mich.	O. R. Yoder	5,027	102	6	18	..	341
University of Minnesota Hospitals [1-3-211]	Minneapolis	D. W. Hastings-R. A. Jensen	698	1	4	11	..	185
Veterans Admin. Hospital [1-3]	Minneapolis	W. Simon	572	1	2	2	46	..
Mayo Foundation [1-3]	Rochester, Minn.	H. P. Rome	1,507	..	3	12	47	175
Veterans Admin. Hospital								
Gulfport Division [1-3]	Biloxi, Miss.	E. R. Bennett	1,664	15	2	2	34	...
Kansas City General Hospital No. 1	Kansas City, Mo.	J. J. O'Hearne	472	2	2	6	..	200
Barnes Hospital [1-3]	St. Louis	E. F. Gildea	844	1	10	18	10	50
St. Louis City Hospital [1-3]	St. Louis	G. Ulett	951	11	4	9	..	92
St. Louis State Hospital [1-3]	St. Louis	L. H. Kohler	3,283	57	7	24	..	370
Veterans Admin. Hospital [1-3]	St. Louis	B. A. Cravant	172	..	3	9	48	...
Nebraska Psychiatric Institute [1-3-225]	Omaha	C. Wittson	301	..	6	25	51	300
Veterans Admin. Hospital [1-3]	Omaha	F. A. Majka	410	2	2	6	53	...
New Jersey State Hospital at Ancora [1-3]	Hammonton, N. J.	M. Mendelson	2,970	59	4	14	..	382
Veterans Admin. Hospital	Lyons, N. J.	M. P. Rosenblum	2,530	41	4	8	54	...
New Jersey State Hospital [1-3]	Trenton, N. J.	H. S. Magee	5,012	95	6	16	10	515
Albany Hospital [1-3]	Albany, N. Y.	W. L. Holt	1,417	10	4	13	..	250
Veterans Admin. Hospital [1-3]	Albany, N. Y.	T. H. Gilmore	541	6	2	5	..	...
Brooklyn State Hospital [1-3]	Brooklyn, N. Y.	N. Beckenstein	5,520	53	6	17	..	417
Kings County Hospital								
Division II [1-3]	Brooklyn, N. Y.	H. W. Potter	9,606	54	10	30	..	177
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	J. Barasch	280	1	1	2	57	...
Buffalo State Hospital [1-3]	Buffalo	D. Whitehead	5,079	66	3	9	..	475
Edward J. Meyer Memorial Hospital [1-3]	Buffalo	S. M. Small	2,750	25	3	9	..	322
Central Islip State Hospital [1-3-252]	Central Islip, N. Y.	F. J. O'Neill	11,562	311	13	22	..	425
Veterans Admin. Hospital [1-3-255]	Montrose, N. Y.	G. Rosenberg	2,193	36	4	10	61	237
Bellevue Hospital Center								
Div. III—New York University College of Medicine[262]	New York City	A. Zitrin	19,169	121	15	51	58	165
Bronx Municipal Hospital Center [1-3]	New York City	M. Rosenbaum	331	..	12	49	..	157
Columbia-Presbyterian Medical Center		L. C. Kolb	....	..	..	..	..	
New York State Psychiatric Institute [1-3]	New York City	....	345	3	4	5	..	225
Presbyterian Hospital [1]	New York City	....	....	..	4	4	..	250
Manhattan State Hospital [1-3-275]	New York City	J. H. Travis	4,238	90	13	13	59	475
New York Hospital [1-3]	New York City	O. Diethelm	272	1	4	14	..	101
St. Luke's Hospital	New York City	J. M. Cotton	266	..	1	3	..	150
St. Vincent's Hospital [1-3]	New York City	H. J. Tompkins	194	..	3	10	..	125
Veterans Admin. Hospital [1-3-276]	New York City (Bronx)	H. L. Flowers	1,321	2	8	24	60	...
Veterans Admin. Hospital [1-3]	New York City (Manhattan)	R. E. Peck	543	2	12	24	..	...
Rockland State Hospital [1-3-281]	Orangeburg, N. Y.	A. M. Stanley	9,966	107	6	15	10	411
Hudson River State Hospital [1-3-387]	Poughkeepsie, N. Y.	O. A. Kilpatrick	5,691	51	4	7	62	411
Creedmoor State Hospital [1-3-282]	Queens Village, N. Y.	H. A. La Burt	8,438	195	9	35	..	457
Rochester State Hospital [1-3-285]	Rochester, N. Y.	C. F. Terrence	5,497	65	3	7	64	457

Numerical and other references will be found on pages 556 through 559.

23. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Indentification	Beginning Stipend (Month)
Strong Memorial-Rochester Municipal Hospitals [1-3-258]	Rochester, N. Y.	J. Romano	1,361	..	8	26	63	117
Ellis Hospital [1-3]	Schenectady, N. Y.	J. L. Best	1,514	1	2	5	..	150
State University of New York Upstate								
Medical Center Hospitals [1-3]	Syracuse, N. Y.	M. Hollender	802	1	5	15	..	233
Veterans Admin. Hospital [1-3]	Syracuse, N. Y.	W. A. Mann	357	..	1	6	..	...
Syracuse Psychopathic Hospital [1-3]	Syracuse, N. Y.	M. H. Hollender	536	1	2	6	66	487
Grasslands Hospital [1-3]	Valhalla, N. Y.	F. V. Rockwell	1,272	6	2	7	..	225
Pilgrim State Hospital [1-3]	West Brentwood, L. I., N. Y.	H. J. Worthing	14,438	129	2	23	..	450
New Y ision [1-3-294]	White Plains, N. Y.	J. H. Wall	744	5	6	12	..	150
North [1-3]	Chapel Hill, N. C.	G. C. Ham	658	1	12	40	..	260
Duke								
Duke Hospital [1-3]	Durham, N. C.	E. W. Busse	428	..	6	20	..	200
Veterans Admin. Hospital [1-3]	Durham, N. C.	J. B. Parker	383	..	1	5	..	...
Graylyn-North Carolina Baptist Hospital [1-3-407]	Winston-Salem, N. C.	A. C. Randolph	84	..	2	9	..	166
University of Cincinnati College of Medicine Hospital Group								
Cincinnati General Hospital [1-3]	Cincinnati	M. Levine	1,122	2	12	42	69	166
Cleveland Receiving Hospital and State Institute of Psychiatry [1-3]	Cleveland	E. N. Hinko	1,377	10	6	18	..	333
Western Reserve University Medical School Affiliated Hospitals								
University Hospitals [1-3]	Cleveland	D. D. Bond	211	..	3	9	71	125
Veterans Admin. Hospital [1-3]	Cleveland	J. Ross	279	..	4	4	71	...
Ohio State University Hospitals								
Columbus Receiving Hospital [1-3-310]	Columbus, Ohio	R. M. Patterson	640	3	6	24	10	333
Harding Sanitarium [1]	Worthington, Ohio	H. S. Evans	594	..	3	5	..	...
Central State-Griffin Memorial Hospital [1-3]	Norman, Okla.	H. G. Hightower	4,417	65	4	10	..	500
University of Oklahoma Medical Center								
University Hospital [1-3-319]	Oklahoma City	L. J. West	66	..	3	9	..	...
Veterans Admin. Hospital [1-3-324]	Oklahoma City	J. T. Shurley	369	2	1	6	..	...
Danville State Hospital [3-331]	Danville, Pa.	R. L. Gatski	3,325	41	7	26	..	433
Norristown State Hospital [1]	Norristown, Pa.	A. P. Noyes	5,450	143	8	28	..	583
Eastern Pennsylvania Psychiatric Institute [1-3]	Philadelphia	J. E. Davis	326	..	3	2	10	300
Pennsylvania Hospital—The Institute and the Department for Mental and Nervous Diseases [1-3]	Philadelphia	L. H. Smith	843	9	6	17	..	200
Philadelphia General Hospital [3]	Philadelphia	J. Stauffer	1,941	14	4	12	..	405
Philadelphia Psychiatric Hospital [1-3]	Philadelphia	S. Cohen	1,321	..	5	15	..	167
Temple University Hospital [1-3-335]	Philadelphia	O. S. English	148	..	6	18	74	...
Western Psychiatric Institute and Clinic [1-3]	Pittsburgh	H. W. Brosin	450	2	15	48	75	267
Warren State Hospital [1-3]	Warren, Pa.	R. H. Israel	4,191	127	14	32	..	433
Medical College of South Carolina Teaching Hospitals [1]	Charleston, S. C.	J. J. Cleckley	437	..	1	3	..	137
[1-3]	Memphis, Tenn.	T. S. Hill	354	..	4	12	..	250
al [1-3]	Nashville, Tenn.	W. F. Orr	101	..	2	6	76	50
[1-3]	Dallas, Texas	R. L. Stubblefield	125	..	3	6	10	125
Branch Hospitals [1-3]	Galveston, Texas	T. Harris	2,558	12	10	30	77	160
Medicine Affiliated Hospitals								
Jefferson Davis Hospital [1-3]	Houston, Texas	W. T. Lhamon	236	..	2	5	..	75
Methodist Hospital [1-3]	Houston, Texas	M. C. Bettis	456	..	3	3	..	100
Veterans Admin. Hospital [1-3-360]	Houston, Texas	A. D. Pokorny	1,433	3	6	17	78	...
University of Utah Affiliated Hospitals								
Salt Lake County General Hospital [1]	Salt Lake City	C. H. H. Branch	309	..	5	16	..	200
Veterans Admin. Hospital [1-3-366]	Salt Lake City	M. P. Graeber	652	12	2	6	..	...
University of Virginia Medical Center Hospitals								
University of Virginia Hospital [1-3]	Charlottesville, Va.	R. W. Garnett	754	..	4	9	80	50
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	R. F. Gayle, Jr.	717	2	1	3	..	75
Veterans Admin. Hospital [1-3]	Richmond, Va.	A. Davis	729	2	1	4	82	...
University of Washington Affiliated Hospitals								
King County Hospital No. 1 (Harbor View) [1]	Seattle	H. S. Ripley	1,788	6	..	1	..	145
Veterans Admin. Hospital [1-3]	Seattle	M H Johnson	338	..	4	12	83	...
University Hospitals [1-3]	Madison, Wis.	R. Roessler	1,208	10	10	30	..	100
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	B S. Wells	1,805	18	2	4	..	...
Hospital Hato Tejas [1-3]	Bayamon, P. R.	R. Fernandez-Marina	585	..	3	9	..	200

Residency programs in the following hospitals have been approved for TWO years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level—see summary of requirements American Board of Psychiatry and Neurology, Inc., page 594.)

Hospitals, 54; Assistant Residencies and Residencies, 410

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Indentification	Beginning Stipend (Month)
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Oakland, Calif.	M. E. Roudebush	1,079	2	4	8	..	...
U. S. Naval Hospital [1]	Philadelphia	J. F. McMullin	1,108	3	4	8	..	...
NONFEDERAL AND VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Tuskegee, Ala.	W. E. Lewis	2,239	11	2	2	..	...
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	A. E. Bennett	595	1	1	3	..	300
Mount Zion Hospital [1-3]	San Francisco	N. Reider	113	..	..	7	..	200
District of Columbia General Hospital [1-3]	Washington, D. C.	J. Schultz	4,206	6	3	3	..	258
George Washington University Hospital [1-3]	Washington, D. C.	W. Overholser	999	1	..	1	..	150
Duval Medical Center [1-3]	Jacksonville, Fla.	S. G. Bedell	699	3	2	5	..	175
Eugene Talmadge Memorial Hospital [1]	Augusta, Ga.	E. J. McCraine	64	..	2	4	..	250
Veterans Admin. Hospital [1-3]	Lexington, Ky	E. W. Straus	1,893	22	1	1	31	...
Veterans Admin. Hospital [1-3]	New Orleans	R. G Heath	277	..	2	4	34	...
Seton Institute [1-3]	Baltimore	L. H. Bartemeier	615	..	3	12	..	250
Springfield State Hospital [1-3]	Sykesville, Md.	I. L. Hitchman	4,683	118	4	11	..	318
Beth Israel Hospital [1-3]	Boston	G. L. Bibring	.....	..	..	8	..	330
Massachusetts General Hospital [1-3-181]	Boston	E. Lindemann	375	..	2	3	40	67
Metropolitan State Hospital [1]	Waltham, Mass.	M. Asekoff	2,931	65	2	4	..	255
McLean Hospital [1-3]	Waverley, Mass.	A. H. Stanton	477	6	4	14	40	...
Minneapolis General Hospital [1-3]	Minneapolis	R. W. Anderson	821	3	1	2	..	200
University Hospital	Jackson, Miss.	F. J. Moore	...	..	..	..	..	...
Homer G. Phillips Hospital [1-3]	St. Louis	E. F. Gildea	631	6	2	6	..	201
Hastings State Hospital [1-3]	Ingleside, Neb.	J. A. Wolford	2,313	20	4	6	52	400
Creighton Memorial-St. Joseph's Hospital	Omaha	C. H. Farrell	834	4	2	6	..	210
Essex County Overbrook Hospital [1-3]	Cedar Grove, N. J.	J. G. Sutton	4,332	92	6	18	..	420
New Jersey State Hospital [1-3]	Greystone Park, N. J.	A. Crandell	9,390	153	4	12	..	515
New Jersey State Hospital [1-3]	Marlboro, N. J.	J. B. Gordon	4,400	110	2	4	..	515
New Jersey Neuro-Psychiatric Institute [1-3]	Skillman, N. J.	R. S. Garber	1,628	20	..	..	..	542
Veterans Admin. Hospital [1-3]	Buffalo	B. G. Schutkeker	179	1	1	2	56	...

Numerical and other references will be found on pages 556 through 559.

23. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[9]	Total Residencies Offered[9]	Program Indentification	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3-251]	Canandaigua, N. Y.	D. Davis	2,064	30	3	6	65	...
Hillside Hospital [1-3]	Glen Oaks, N. Y.	J. S. A. Miller	560	..	9	19	10	36
St. Vincent's Hospital [1-3]	Harrison, N. Y.	R. D. Isernia	495	..	2	4	..	25
Gowanda State Homeopathic Hospital [1-3]	Helmuth, N. Y.	I. M. Rossman	3,763	67	6	6	..	45
Kings Park State Hospital [1-3]	Kings Park, N. Y.	C. Buckman	8,904	113	4	12	..	47
Marcy State Hospital [1-3]	Marcy, N. Y.	N. Bigelow	3,849	33	5	5	..	48
Middletown State Homeopathic Hospital [1-3]	Middletown, N. Y.	H. Pleasure	4,341	97	4	8	..	45
Mount Sinai Hospital [1-3]	New York City	M. R. Kaufman	119	..	..	10	..	5
High Point Hospital [1-3]	Port Chester, N. Y.	A. Gralnick	100	..	..	4	..	35
Utica State Hospital [1-3-293]	Utica, N. Y.	B. B. Young	3,475	61	4	5	..	45
Willard State Hospital [1-3]	Willard, N. Y.	K. Keill	3,643	74	4	8	..	43
Harlem Valley State Hospital [1-3]	Wingdale, N. Y.	L. P. O'Donnell	6,706	64	7	7	55	47
State Hospital [1-3]	Raleigh, N. C.	W. A. Sikes	3,629	46	4	8	..	35
Cleveland Clinic Hospital [1-3]	Cleveland	G. H. Williams	610	..	1	3	70	15
Columbus State Hospital [1-3-311]	Columbus, Ohio	B. Kovitz	3,501	122	8	24	10	50
Oregon State Hospital [1]	Salem, Ore.	H. L. Nelson	5,169	159	2	8	..	55
Allentown State Hospital	Allentown, Pa.	....	.....	..	..	..	..	...
Veterans Admin. Hospital [1-3-330]	Coatesville, Pa.	M. J. Gardner	2,069	40	7	12	73	...
Embreeville State Hospital [1]	Embreeville, Pa.	A. O. Hecker	1,321	35	6	9	..	55
Harrisburg State Hospital [1-3]	Harrisburg, Pa.	H. C. Eaton	2,750	37	6	12	..	52
Friend's Hospital [1-3]	Philadelphia	T. L. Dehne	554	7	4	6	..	40
Hospital of the University of Pennsylvania [1-3]	Philadelphia	K. Appel	18	..	6	12	..	20
Philadelphia State Hospital [1-3]	Philadelphia	E. L. Sielke	7,421	45	12	36	..	57
State Hospital for Mental Diseases [1]	Howard, R. I.	J. F. Regan	4,868	136	8	14	..	36
Eastern State Hospital [1-3]	Williamsburg, Va.	J. E. Barrett	3,226	81	8	15	81	60
Milwaukee Sanitarium [1-3]	Wauwatosa, Wis.	C. W. Osgood	568	10	3	3	..	40
Territorial Hospital [1-3-345]	Kaneohe, T. H.	R. A. Kimmich	1,776	20	2	4	..	63

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level—see summary of requirements *American Board of Psychiatry and Neurology, Inc.*, page 594.)

Hospitals, 57; Assistant Residencies and Residencies, 208

UNITED STATES PUBLIC HEALTH SERVICE

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Indentification	Beginning Stipend (Month)
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	R. Cohen	95	..	10	10	..	...
U. S. Public Health Service Hospital [1-3]	Stapleton, L. I., N. Y.	E. W. Green	544	1	..	2	..	...

NONFEDERAL AND VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Indentification	Beginning Stipend (Month)
Agnews State Hospital [1-3]	Agnew, Calif.	R. P. Quirmbach	7,719	113	4	4	..	35
Comptom Sanitarium [1-3]	Compton, Calif.	G. C. Burns	634	1	4	4	..	37
Napa State Hospital [1-57]	Imola, Calif.	W. A. Oliver	8,637	181	2	2	..	35
Patton State Hospital [1]	Patton, Calif.	R. J. Lentz	4,364	142	2	2	..	35
Pacific State Hospital [1-3]	Pomona, Calif.	G. Tarjan	2,901	90	..	3	..	33
Kaiser Foundation Hospital [1-3-10]	San Francisco	B. I. Kahn	...	..	..	2	..	25
Silver Hill Foundation	New Canaan, Conn.	W. B. Terhune	300	..	1	2	..	...
Grady Memorial Hospital [1-3]	Atlanta, Ga.	J. S. Skobba	317	..	1	1	..	25
Elgin State Hospital [1-3]	Elgin, Ill.	W. Tuteur	6,700	209	..	6	23	...
Galesburg State Research Hospital	Galesburg, Ill.	T. T. Tourlentes	1,289	90	5	9	..	47
North Shore Health Resort [1-3]	Winnetka, Ill.	S. [illegible]	436	3	..	3	..	...
Central State Hospital [1]	Indianapolis	C. [illegible]	2,737	67	4	4	..	37
Logansport State Hospital [1-3]	Logansport, Ind.	J. [illegible]	3,547	27	4	4	..	65
Dr. Norman M. Beatty Memorial Hospital [1]	Westville, Ind.	C. L. Williams	3,202	34	4	4	..	35
Mental Health Institute [1-3]	Cherokee, Iowa	W. C. Brinegar	1,908	65	2	2	..	42
Crownsville State Hospital [1-3]	Crownsville, Md.	B. C. Campden-Main	3,544	37	5	5	..	40
Chestnut Lodge [1-3]	Rockville, Md.	D. M. Bullard	150	..	..	4	..	...
New England Center Hospital [1-3]	Boston	J. Hope	1,767	..	1	2	..	10
Peter Bent Brigham Hospital [1-3]	Boston	H. M. Fox	Incl. in Int. Med.		..	2	..	33
St. Elizabeth's Hospital [1-3]	Boston	N Flanagan	567	..	1	1	..	12
Foxborough State Hospital [1-3]	Foxborough, Mass.	J. T. Shea	1,808	77	3	8	..	...
Medfield State Hospital [1-3]	Medfield, Mass.	D. P. Keneflck	1,910	80	4	7	..	32
Austen Riggs Center [1-35]	Stockbridge, Mass.	R. P. Knight	95	..	..	7	..	50
Taunton State Hospital [1-3]	Taunton, Mass.	W. E. Glass	2,898	72	6	9	..	32
Westboro State Hospital [1-3]	Westboro, Mass.	J. W. Dykens	2,606	35	2	4	..	25
Traverse City State Hospital [1]	Traverse City, Mich.	M. D. Sommerness	4,192	55	5	5	..	50
Mississippi State Hospital [1]	Whitfield, Miss.	J. J. Head	7,849	102	6	6	..	30
St. Mary's Group of Hospitals [1-3]	St. Louis	F. M. Grogan	546	3	1	1	50	10
Norfolk State Hospital [1-220]	Norfolk, Neb.	C. G. Ingham	1,805	..	3	3	52	40
New Hampshire State Hospital [1-3]	Concord, N. H.	G. D. Niswander	8,661	49	2	6	..	23
Bergen Pines County Hospital [1-3]	Paramus, N. J.	H. C. Lederer	1,232	3	1	1	..	30
Binghamton State Hospital [1-3-232]	Binghamton, N. Y.	O. H. Boltz	4,256	38	5	5	..	47
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	R. R. Steen	1,332	16	1	1	..	25
Lenox Hill Hospital [1-3-10]	New York City	K. F. Woodward	...	..	..	1	..	47
New York University-Bellevue Medical Center							58	65
University Hospital	New York City	S. B. Wortis	60	..	..	5	..	13
Roosevelt Hospital [1-3]	New York City	R. W. Laidlaw	67	..	2	4	..	45
St. Lawrence State Hospital [1-3]	Ogdensburg, N. Y.	H. B. Snow	2,888	93	4	8	..	30
Stony Lodge [1-3]	Ossining, N. Y.	L. E. Bernard	...	..	2	2	..	41
Astor Home for Children [1-3]	Rhinebeck, N. Y.	J. J. Reidy	49	..	..	2	..	47
Letchworth Village [1-3]	Thiells, N. Y.	I. N. Wolfson	4,323	34	2	2	..	30
Jewish Hospital [1-3]	Cincinnati	P. Piker	641	5	..	2	..	25
Longview State Hospital [1-3]	Cincinnati	D. Goldman	3,317	113	3	6	..	45
St. Charles Hospital [1-3]	Toledo, Ohio	E. Haynes	753	..	2	2	..	15
Abington Memorial Hospital [1-3]	Abington, Pa.	K. E. Appel	286	1	..	1	..	23
Albert Einstein Medical Center [1-3]	Philadelphia	P. Sloane	72	..	..	3	..	10
Jefferson Medical College Hospital [1-3]	Philadelphia	B. L. Keyes	115	..	..	1	..	...
Veterans Admin. Hospital [1-3]	Philadelphia	M. Cohen	359	2	..	1	..	30
St. Francis General Hospital and Rehabilitation Institute [1-3]	Pittsburgh	H. L. Mitchell	4,650	30	1	3	..	41
Charles V. Chapin Hospital [1-3]	Providence, R. I.	W. N. Hughes	968	2	2	2	..	28
Emma Pendleton Bradley Home [1-3]	Riverside, R. I.	M. W. Laufer	72	..	..	3	..	41
Brattleboro Retreat [1-3]	Brattleboro, Vt.	J. B. Tompkins	1,271	2	4	4	..	42
Vermont State Hospital [1-3]	Waterbury, Vt.	R. A. Chittick	1,851	32	2	2	..	45
Pinel Foundation [1-3]	Seattle	S. W. Jackson	108	..	..	2	..	60
Mendota State Hospital [1]	Madison, Wis.	G. B. Tybring	2,347	20	6	9	..	17
Queen's Hospital [1-3]	Honolulu, T. H.	E. Harris	514	..	1	2	..	

Numerical and other references will be found on pages 556 through 559.

PSYCHIATRY PROGRAM IDENTIFICATION

10 Service in child psychiatry
11 Six months service at Los Angeles County Hospital Los Angeles
12 Nine months service at Mount Zion Hospital six months at Langley Porter Clinic and service in child psychiatry, San Francisco
13 Three months of service at Napa State Hospital San Francisco Hospital Stockton State Hospital Sonoma State Home and San Quentin Prison and six months at Colwell Memorial Hospital
14 Three months service at Fort Miley Veterans Administration Hospital San Francisco and Langley Porter Clinic San Francisco, may include elective services at University of California Hospital Mount Zion Hospital and Stanford University (Lane) Hospital San Francisco
15 Three months service at Pacific Colony Hospital Pomona and three months service in child psychiatry at Camarillo State Hospital
16 Affiliate service at Colorado General and Denver General Hospital
17 Affiliate service at Veterans Administration Hospital West Haven Connecticut State Hospital Fairfield State Hospital, Norwich State Hospital and service in child psychiatry
18 Twelve months service at Grace New Haven Community Hospital, New Haven Connecticut
19 Six month service at Governor Bacon Health Center, Delaware City
20 Two months service at George Washington University Hospital Washington D C
21 Affiliate service at University Hospital Augusta, Georgia
22 Twelve month service at the Neuropsychiatric Institute of the University of Illinois including service in child psychiatry
23 Eighteen month affiliate service including service at the Neuropsychiatric Institute of the University of Illinois and three months in child psychiatry
24 Affiliate service at Neuropsychiatric Institute of the University of Illinois and service in child psychiatry
25 Three months service at Veterans Administration Hospital Downey, Illinois and service in child psychiatry
26 Six months service at Veterans Administration Hospital Hines Illinois May include service in child psychiatry
27 Six months service in child psychiatry
28 Integrated program including service at Veterans Administration Hospital Indianapolis General Hospital and Indiana University Medical Center and Affiliated Hospitals, Indianapolis
29 Integrated program including service at Veterans Administration Hospital Menninger Sanitarium and Topeka State Hospital Topeka Kansas
30 Four months service at University of Louisville Services, Louisville Kentucky, and four months service at Cincinnati General Hospital Cincinnati Ohio
31 Three months service at University of Louisville Services Louisville Kentucky
32 Twelve months service at University of Louisville Services May include four months service at Central State Hospital four month service at Louisville General Hospital
33 Four months service at Central State Hospital and service in child psychiatry
34 Integrated program including service at Tulane University Unit Charity Hospital New Orleans, and Veterans Administration Hospitals New Orleans and Biloxi, Mississippi
35 Six months service in child psychiatry and twelve months service at South Louisiana State Hospital
36 Service in child psychiatry
37 Three months service in child psychiatry at Johns Hopkins Hospital (Harriet Lane House), Baltimore, Maryland
38 Twelve months service at Boston State Hospital and service in child psychiatry
39 Twelve-eighteen months service at Veterans Administration Hospital Boston (Jamaica Plain) Massachusetts and six months service in child psychiatry
40 Integrated program including service at Massachusetts General Hospital and McLean Hospital Waverly, may include 1 year training in child psychiatry at James Jackson Putnam Children's Center
41 Twelve months service at University Hospital Ann Arbor Michigan
42 University Hospital Ann Arbor Michigan
43 Three months service at Coldwater State Home and Training School Caro State and Ionia State Hospitals and service in child psychiatry
44 Six months service in child psychiatry at Children's Hospital Detroit
45 Six months service at Receiving Hospital, Children's Hospital, Detroit, and Wayne County General Hospital and Infirmary, Eloise, Michigan
46 University of Minnesota Hospitals Minneapolis, Minnesota
47 Three months service at Rochester State Hospital, Rochester, Minn
48 Affiliate service at Barnes Hospital St Louis and three months at St Louis State Hospital
49 Six months service at Barnes Hospital, St Louis, Missouri
50 Service at St Louis State Hospital and St Louis City Hospital.
51 Service at Lutheran Hospital, Omaha
52 Service at University of Nebraska Hospital
53 Affiliate service at University of Nebraska Hospital and Creighton Memorial St Joseph Hospital, Omaha Nebraska
54 Six months service at Newark City Hospital three months at New Jersey State Hospital and three months in child psychiatry
55 Three months service at Albany Hospital Albany New York
56 Affiliate services at Edward J Meyer Memorial Hospital and Buffalo State Hospital
57 Six months service at Kings County Hospital Brooklyn, New York
58 Integrated program with service at Bellevue Hospital Center and University Hospital
59 Six months service at Mount Sinai Hospital New York City
60 Service in child psychiatry May include six months service at Mount Sinai Hospital and three months at Manhattan State Hospital
61 Twelve months service at New York Hospital and four months at Veterans Administration Hospital, New York City (Bronx), New York
62 Three months service at Grasslands Rockland State, Albany Hospitals and Letchworth Village
63 Six months service at Rochester State Hospital, Rochester, New York
64 Six months service at Strong Memorial Rochester Municipal Hospitals, Rochester
65 Affiliate service at Strong Memorial Rochester Municipal Hospitals
66 Three months service at Syracuse Memorial, Binghamton, Syracuse and Willard State Hospitals, service at Craig Colony and service in child psychiatry
67 Affiliate service at State Hospitals at Raleigh and Butner, North Carolina
68 Eighteen months service at Duke Hospital Durham, North Carolina
69 Three months service at Longview State and Jewish Hospitals, Cincinnati
70 Integrated program including service at Cleveland Clinic and Windsor Hospital
71 Integrated program including service at University Hospital and Veterans Administration Hospital Cleveland, Ohio
72 Integrated program with service at Institute of the Pennsylvania Hospital and Pennsylvania Hospital Department for Mental and Nervous Diseases
73 Affiliate service at Temple University Hospital Institute of Pennsylvania Hospital of the Woman's Medical College of Pennsylvania
74 Six months service at Philadelphia General Hospital and service in child psychiatry
75 Two months affiliate service for institutional care
76 Integrated program including service at Vanderbilt University Hospital, Veterans Administration Hospital, Nashville, Veterans Administration Hospital Murfreesboro and Central State Hospital Nashville
77 Four months affiliate service at St Mary's Infirmary, Galveston, Texas
78 Service in child psychiatry at Jefferson Davis Hospital Houston Texas
79 Six months affiliate service at Veterans Administration Hospital Salt Lake City, Utah and affiliate services at State Hospital, Provo, Utah
80 Integrated program including service at University of Virginia Hospital, Charlottesville and Veterans Administration Hospital Roanoke, Va
81 Affiliate service at Southwestern State Hospital Marion and Lynchburg State Colony, Lynchburg Va
82 Six months service at Medical College of Virginia—Hospital Division, Richmond, and service in child psychiatry
83 Six months service at Veterans Administration Hospital American Lake, Washington, and six months in child psychiatry

24 PULMONARY DISEASES

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Pulmonary Diseases of the American Board of Internal Medicine, as offering acceptable training in the specialty.

Hospitals, 111; Assistant Residencies and Residencies, 359

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Fitzsimons Army Hospital [1]	Denver	J A Wier	2 217	14	9	9	..
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1,3]	Washington, D C	H M Payne	170	11	1	3	216
NONFEDERAL AND VETERANS ADMINISTRATION							
Maricopa County General Hospital [1,3]	Phoenix, Ariz	M Jeffrey	244	11	1	1	300
City of Hope Medical Center [1,3]	Duarte Calif	L Tepper	355	15	1	1	400
Barlow Sanatorium [1-3]	Los Angeles	H W Bosworth	235	2	2	2	200
Los Angeles County Hospital [1]	Los Angeles	H Gierson	1,373	56		.	246
Bret Harte Sanatorium [1,3,66]	Murphys, Calif	L M Barber	537	7	1	1	500
San Diego County General Hospital [1,3]	San Diego, Calif	V J Wyborney	251	5	1	3	175
San Francisco Hospital							
Stanford University Service [1,3]	San Francisco	H C Hinshaw	853	17	.	1	195
University of California Service [1,3]	San Francisco	S M Farber	854	18		1	195

Numerical and other references will be found on pages 556 through 559

24. PULMONARY DISEASES—*Continued*

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Santa Clara County Hospital [1-3]	San Jose, Calif.	C. G. Scarborough	215	7	1	2	[illegible]
Fairmont Hospital of Alameda County [1-3-74]	San Leandro, Calif.	J. L. Eaton	449	30	1	1	[illegible]
Tulare-Kings Counties Hospital [1-3]	Springville, Calif.	W. A. Winn	454	26	5	5	[illegible]
National Jewish Hospital [1-3]	Denver	S. H. Dressler	642	12	2	2	250
University of Colorado Medical Center		R. S. Mitchell	.....	..	..	..	...
Colorado General Hospital [1-3]	Denver		128	9	..	2	[illegible]
Denver General Hospital [1-3]	Denver		149	10	..	..	...
Cedarcrest Hospital [1-3]	Newington, Conn.	R. C. Edson	631	15	1	1	835
Uncas on Thames [1-3]	Norwich, Conn.	N. L. Cressy	827	20	4	4	335
Laurel Heights State Tuberculosis Sanatorium [1-3]	Shelton, Conn.	K. S. Howlett, Jr.	644	13	2	2	96
Veterans Admin. Hospital [1-3]	West Haven, Conn.	N. d'Esopo	757	24	4	4	...
District of Columbia General Hospital [1-3]	Washington, D. C.	S. Katz	552	26	2	4	233
George Washington University Hospital [1-3]	Washington, D. C.	J. J. Feffer	610	34	1	2	150
Chicago State Tuberculosis Sanitarium [1-3]	Chicago	M. M. Pyle	800	19	3	3	250
City of Chicago Municipal Tuberculosis Sanitarium [1-3]	Chicago	L. H. Berard	3,301	54	2	2	175
Michael Reese Hospital	Chicago	D. Radner	254	18	1	3	100
Peoria Municipal Tuberculosis Sanitarium [1-3]	Peoria, Ill.	D. Morse	166	5	1	1	250
Lake County Tuberculosis Sanatorium [1-3]	Waukegan, Ill.	C. K. Petter	272	10	1	1	250
Indianapolis General Hospital [1]	Indianapolis	J. H. Stygall	230	4	..	1	325
Sunnyside Sanatorium [1-3]	Indianapolis	J. D. Miller	398	10	2	2	400
Healthwin Hospital [1]	South Bend, Ind.	E. W. Custer	317	5	1	1	500
University of Kansas Medical Center [1-3]	Kansas City, Kan.	M. Fitz Patrick	164	4	1	1	125
Charity Hospital of Louisiana							
Louisiana State University Unit [1]	New Orleans	W. R. Akenhead	210	12	2	3	175
Central Maine Sanatorium [1-3-153]	Fairfield, Maine	W. B. Grow	182	11	1	1	75
Baltimore City Hospital [1-3]	Baltimore	E. G. Beacham	652	14	2	3	50
Glenn Dale Hospital [1-3]	Glenn Dale, Md.	M. Weiss	1,210	29	4	4	333
Boston Sanatorium [1-3]	Boston	J. A. Foley	988	15	1	5	202
Cambridge Sanatorium [1-3]	Cambridge, Mass.	R. Kurzmann	178	5	1	1	540
Veterans Admin. Hospital [1-3]	Rutland Heights, Mass.	S. T. Allison	1,150	..	1	1	...
Middlesex County Sanatorium [1-3]	Waltham, Mass.	H. W. Evarts	532	11	1	1	525
Westfield State Sanatorium [1-3]	Westfield, Mass.	J. M. Houser	283	10	..	3	490
Henry Ford Hospital [1-3]	Detroit	E. O. Coates, Jr.	492	19	2	2	225
Herman Kiefer Hospital [1-3]	Detroit	P. T. Chapman	2,504	87	9	11	525
Michigan State Sanatorium [1-3]	Howell, Mich.	W. F. Fidler	837	..	4	4	560
Veterans Admin. Hospital [1-3]	Minneapolis	W. W. Stead	625	40	..	..	...
Nopeming Sanatorium [1-3]	Nopeming, Minn.	R. W. Backus	653	13	1	1	150
Glen Lake Sanatorium [1-3]	Oak Terrace, Minn.	R. H. Frost	780	28	3	3	226
Mayo Foundation [1-3]	Rochester, Minn.	H. J. Moersch	Incl. in Int. Med.		..	..	175
Mississippi State Sanatorium	Sanatorium, Miss.	H. Boswell	.....	..	..	..	...
Robert Koch Hospital [1-3]	Koch, Mo.	B. Friedman	1,272	20	5	16	350
St. Mary's Group of Hospitals [1-3]	St. Louis, Mo.	G. O. Broun	257	7	1	1	100
Veterans Admin. Hospital [1-3]	East Orange, N. J.	M. K. Small	507	40	1	2	...
New Jersey Sanatorium for Chest Diseases [1-3]	Glen Gardner, N. J.	J. A. Smith	474	3	5	5	515
B. S. Pollak Hospital for Chest Diseases	Jersey City, N. J.	S. Cohen	1,201	46	..	9	167
Bergen Pines County Hospital [1-3]	Paramus, N. J.	R. R. Little	512	31	2	2	200
Essex County Sanatorium [1-3]	Verona, N. J.	I. Ocheret	752	23	3	5	529
Veterans Admin. Hospital [1-3]	Albuquerque, N. Mex.	J. W. Berry	849	16	1	1	...
Albany Hospital [1-3]	Albany, N. Y.	F. C. Maxon	235	11	1	2	160
Kings County Hospital							
Division I [1-3]	Brooklyn, N. Y.	C. C. Hamilton	Incl. in Int. Med.		1	1	155
Division II [1-3]	Brooklyn, N. Y.	H. Lyons	Incl. in Int. Med.		1	1	104
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	H. L. Katz	404	28	1	1	...
Edward J. Meyer Memorial Hospital [1-3]	Buffalo	D. R. McKay	811	30	..	1	219
Elmhurst General Hospital [1-3-17]	Elmhurst, N. Y.	S. Bassin	221	1	1	2	104
Nassau County Tuberculosis Hospital [1-3]	Farmingdale, N. Y.	J. G. Carlton	508	18	5	5	...
Triboro Hospital [1-3]	Jamaica, N. Y.	H. H. Epstein	1,009	19	13	13	157
Ulster County Tuberculosis Hospital	Kingstown, N. Y.		.....	..	..	..	...
Niagara Sanatorium [1-3]	Lockport, N. Y.	L. C. Evander	282	20	1	2	325
Mount Morris Tuberculosis Hospital [1-3]	Mount Morris, N. Y.	F. L. Armstrong	515	30	2	2	455
Bellevue Hospital Center							
Div. I-Columbia University [1-3]	New York City	J. H. McClement	1,888	62	18	26	157
Bronx Municipal Hospital Center [1-3]	New York City	E. H. Rubin	706	14	10	10	165
Montefiore Hospital [1-3]	New York City	R. Bloch	534	32	5	7	197
Morrisania City Hospital [1-3]	New York City	P. Hurwitz	Incl. in Int. Med.		1	1	104
New York Medical College-Metropolitan Medical Center							
Metropolitan Hospital [1-3]	New York City	I. G. Epstein	578	11	8	8	157
St. Joseph's Hospital for Chest Diseases [1-3]	New York City	F. J. McCarthy	3,343	20	4	4	200
Veterans Admin. Hospital [1-3]	New York City (Bronx)	D. J. Stone	1,005	59	..	..	...
Homer Folks Tuberculosis Hospital [1-3]	Oneonta, N. Y.	R. Horton	582	5	2	3	495
Ray Brook State Tuberculosis Hospital [1-3]	Ray Brook, N. Y.	F. Beck	633	19	2	2	495
Iola-Monroe County Tuberculosis Sanatorium	Rochester, N. Y.	J. M. MacMillan	501	11	2	5	416
Glenridge Sanatorium [1-3]	Schenectady, N. Y.	J. M. Blake	269	2	3	3	340
Sea View Hospital [1-3]	Staten Island, N. Y.	E. H. Robitzek	3,266	25	25	25	157
Veterans Admin. Hospital [1-3]	Sunmount, N. Y.	J. W. Raleigh	1,113	23	2	2	...
Broadacres Sanatorium [1-3]	Utica, N. Y.	S. C. F. Mahady	386	11	1	1	495
Grasslands Hospital [1-3]	Valhalla, N. Y.	W. G. Childress	565	30	3	1	225
Duke University Hospital [1-3]	Durham, N. C.	E. E. Menefee	198	3	..	..	250
North Carolina Sanatorium for the Treatment of Tuberculosis [1-3]	McCain, N. C.	W. C. Hewitt	1,293	13	4	4	500
Veterans Admin. Hospital [1-3]	Oteen, N. C.	W. S. Schwartz	2,021	21	..	6	...
Veterans Admin. Hospital	Brecksville, Ohio	J. A. O'Hale	657	9	1	1	...
City Hospital [1-3]	Cleveland	R. C. McKay	911	27	4	4	162.5
Sunny Acres-Cuyahoga County Tuberculosis Hospital [1-3]	Cleveland	H. G. Curtis	936	28	2	2	383
Ohio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	J. A. Prior	Incl. in Int. Med.		..	1	[illegible]
Ohio Tuberculosis Hospital [1-3]	Columbus, Ohio	R. J. Atwell	492	14	2	5	[illegible]
Eagleville Sanatorium [1-3]	Eagleville, Pa.	J. J. Kirshner	377	4	3	3	...
Chas. H. Miner State Hospital [1-3]	Hamburg, Pa.		993	..	4	4	417
Graduate Hospital of The University of Pennsylvania [1-3]	Philadelphia	H. Israel	187	3	1	1	[illegible]
Hospital of The University of Pennsylvania [1-3]	Philadelphia	S. Leopold	Incl. in Int. Med.		2	2	...
Philadelphia General Hospital [3]-Blockley Division	Philadelphia	W. Weiss	669	49	1	5	333
Philadelphia General Hospital-Northern Division [1-3]	Philadelphia	H. Shubin	612	19	2	2	333
Samuel G. Dixon State Hospital [1]	South Mountain, Pa.	W. A. Gette	1,734	10	2	2	473
Oakville Memorial Sanatorium [1-3]	Memphis, Tenn.	S. C. Carter	402	11	1	2	[illegible]
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	S. Phillips	871	13	2	2	...
West Tennessee Tuberculosis Hospital	Memphis, Tenn.	E. P. Bowerman	984	11	2	3	[illegible]
Veterans Admin. Hospital [1]	Nashville, Tenn.	R. A. Goodwin, Jr.	431	2	1	1	...
Parkland Memorial Hospital [1-3]	Dallas, Texas	J. O. Armstrong	243	6	1	1	125
Baylor University College of Medicine Affiliated Hospitals							
Veterans Admin. Hospital [1-3]	Houston, Texas	I. Chofnas	Incl. in Int. Med.		1	1	...
Veterans Admin. Hospital [1-3]	McKinney, Texas	D. O. Shields	322	11	2	4	...
Blue Ridge Sanatorium	Charlottesville, Va.	C. G. Pearson	825	16	1	1	575
Veterans Admin. Hospital [1-3]	Richmond, Va.	W. T. Thompson, Jr.	1,459	21	..	2	...

Numerical and other references will be found on pages 556 through 559.

24. PULMONARY DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Firland Sanatorium [1-3]	Seattle	T. F. Sheehy, Jr.	1,861	50	3	8	300
Central Washington Tuberculosis Hospital [1]	Selah, Wash.	A. R. Allen	387	9	1	1	500
Muirdale Sanatorium [1-3]	Milwaukee	A. V. Cadden	1,847	17	..	2	257
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	R. A. Hemphill	1,737	54	1	1	...
Leahi Hospital [1-3]	Honolulu, T. H	H. H. Walker	919	14	3	3	350

25. RADIOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Radiology, through the Residency Review Committee for Radiology. These programs are approved for THREE years of training in all phases of Radiology. All programs listed offer three years of training intramurally, or on an integrated basis, or through affiliation with another approved institution. Hospitals listed with the following symbol (=) are approved and offer training of three years intramurally, in addition to participating in an integrated residency program.

Hospitals, 363; Assistant Residencies and Residencies, 1,721

Name of Hospital	Location	Chief of Service	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES AIR FORCE									
U.S. Air Force Hospital	San Antonio, Texas	J. M. Keegan	57,581	11	1,525	426	2	6	...
UNITED STATES ARMY									
Letterman Army Hospital [1-3]	San Francisco	D. Dullum	54,000	110	5,643	596	2	6	...
Fitzsimons Army Hospital [1]	Denver	A. B. Ramsay	61,834	41	4,066	577	2	6	...
Army Medical Center [1-3]	Washington, D. C.	E. A. Lodmell	67,808	782	10,130	334	3	9	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. A. Isherwood	63,381	143	5,617	68	3	9	...
UNITED STATES NAVY									
U.S. Naval Hospital [1-3]	Oakland, Calif.	B. O. Junnila	79,690	21	1,762	538	1	2	...
U.S. Naval Hospital [1]	San Diego, Calif.	J. L. Messersmith	76,919	56	5,698	67	2	6	...
U.S. Naval Hospital [1-3]	Bethesda, Md.	S. F. Williams	40,513	10	3,312	3,527	1	3	...
U.S. Naval Hospital [1]	Chelsea, Mass.	C. E. Bentel	20,167	10	679	194	1	2	...
U.S. Naval Hospital [1]	St Albans, N. Y.	C. Gartenlaub	55,890	3	3,793	98	2	5	...
U.S. Naval Hospital [1]	Philadelphia	G. C. Daughtridge	34,908	15	1,627	226	1	3	...
UNITED STATES PUBLIC HEALTH SERVICE									
U. S. Public Health Service Hospital [1-3]	New Orleans	G. A. Shipman	26,516	...	.....	...	1	3	...
U. S. Public Health Service Hospital [1-3]	Baltimore	L. B. Garbe	15,981	81	2,992	507	1	4	...
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	T. Hilbish-J. R. Andrews	27,321	6	282	1,849	2	2	...
U. S. Public Health Service Hospital [1-3-202]	Stapleton, S. I., N. Y.	W. M. Sennott	32,354	4	2,141	467	2	5	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1-3]	Washington, D. C	T. W. Davis	35,081	24	1,681	428	1	3	218
NONFEDERAL AND VETERANS ADMINISTRATION									
Birmingham Baptist		J. W. Underwood	12,295	81	5,181	.....	..	3	200
University of Alabam		J. G. Wood	.....	...	.....	...	..	9	...
University Hospital		J. G. Wood	36,053	164	9,302	1,907	..	..	108
Veterans Admin. Hospital [1]	Birmingham, Ala.	B. Lieberman	26,163	3	2,412	53	..	..	...
University Hospital [1]	Little Rock, Ark	D. M. Gould	31,472	56	4,066	434	3	9	150
Kern County General Hospital [1]	Bakersfield, Calif.	R. Karlen	27,297	37	1,446	176	1	3	325
San Joaquin General Hospital [1]	French Camp, Calif	A. Cove	51,086	14	1,690	.....	1	2	260
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	H. J. Prichard-G. Beckstrand	17,393	72	700	35	1	3	235
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	F. Isaac	53,819	2	5,671	1,266	2	6	...
Cedars of Lebanon Hospital [1-3]	Los Angeles	H. Jaffe-D. Zion	21,542	21	5,362	.....	2	5	250
Hospital of the Good Samaritan [3]	Los Angeles	J. D. Camp	34,626	14	5,018	184	2	2	225
Los Angeles County Hospital [1]	Los Angeles	G. Jacobson	94,171	294	10,535	1,073	4	13	246
Queen of Angels Hospital [1-3]	Los Angeles	L. S. Goin	17,023	38	1,914	348	1	2	200
University of California Hospital [1-3]	Los Angeles	A. H. Dowdy	36,868	12	1,704	572	2	8	198
Veterans Admin. Hospital [1-3]	Los Angeles	C. W. McClanahan	54,879	74	9,332	2,307	3	8	...
White Memorial Hospital [1-3]	Los Angeles	W. L. Stilson	19,994	58	3,558	412	2	4	150
Highland-Alameda County Hospital [1]	Oakland, Calif	H. H. Jensen	28,474	45	4,409	.....	1	3	200
Sutter Community Hospitals [1]	Sacramento, Calif.	E. G. Tainter	13,836	36	15,199	3,259	1	2	248
San Diego County General Hospital [1-3-63]	San Diego, Calif.	E. L. Whitehead	17,243	42	1,853	93	1	3	175
Children's Hospital [1-3]	San Francisco	G. G. King	9,481	30	1,130	41	1	2	150
Mount Zion Hospital [1-3]	San Francisco	J. Levitin	13,927	20	1,094	.....	1	3	150
St. Francis Memorial Hospital [1-3]	San Francisco	C. R. Fielder	18,833	14	3,970	1,580	1	1	200
St. Mary's Hospital [1-3]	San Francisco	C. Capp	16,974	24	2,165	124	1	3	150
San Francisco Hospital	San Francisco								
Stanford University Service [1-3]	San Francisco	L. H. Garland	20,072	20	1,781	47	..	3	195
Universit	San Francisco	A. J. Williams	.....	.....	.....	.....	..	..	...
Stanford	San Francisco	H. S. Kaplan	16,097	21	4,922	.....	2	5	80
Veterans	San Francisco	W. W. Saunders	28,417	2,868	189	19	..	..	...
University	San Francisco	R. S. Stone	44,330	88	10,465	434	2	7	210
Santa Cla	San Jose, Calif.	J. J. McCort	12,515	18	1,070	166	1	2	260
Harbor General Hospital [1]	Torrance, Calif.	J. H. Woodruff	36,408	61	2,511	737	2	6	246
Glockner-Penrose Hospital [1-3]	Colorado Springs, Colo.	J. W. McMullen-J. Del Regato	18,664	4	11,294	1,491	3	7	150
General Rose Memorial Hospital	Denver	J. H. Weiss-M. H. Levine	14,243	28	1,820	...	1	3	250
Presbyterian Hospital [1-3]	Denver	K. D. A. Allen	12,180	80	6,564	147	1	3	225
St. Joseph's Hospital	Denver	E. J. Meister	13,157	46	1,594	.....	1	3	200
St. Luke's Hospital [1]	Denver	W. P. Stampfli	14,500	33	2,190	985	2	3	225
University of Colora		R. R. Lanier	.....	.....	.....	.....	4	10	...
Colorado General		R. R. Lanier	27,674	56	1,906	274	..	..	180
Denver General Hospital [1-3]	Denver	E. Salzman	33,038	18	876	229	..	..	157
Veterans Admin. Hospital [1-3]	Denver	A. L. Daywitt	32,901	59	4,080	396	2	5	...
Bridgeport Hospital [1-3]	Bridgeport, Conn.	J. J. Esposito	16,593	95	2,704	.....	1	2	240
St. Vincent's Hospital [1-3]	Bridgeport, Conn.	R. Russo	22,386	51	1,246	126	1	2	300
Hartford Hospital [1-3-95]	Hartford, Conn.	R. T. Ogden	41,446	68	15,196	.....	2	4	100
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	A. H. Janzen-R. M. Lowman	53,021	153	6,703	.....	3	9	50
Hospital of St. Raphael [3]	New Haven, Conn.	R. Shapiro	21,171	60	7,559	611	2	6	150
St. Mary's Hospital	Waterbury, Conn.	K. R. Kaess	18,952	12	2,300	25	1	3	225
Waterbury Hospital [1]	Waterbury, Conn.	J. M. James	19,264	37	2,225	247	1	3	225
Veterans Admin. Hospital [1-3-100]	West Haven, Conn.	A. B. Skorneck	20,828	2	1,504	7	1	2	...
Delaware Hospital [1-3]	Wilmington, Del.	W. W. Lattomus	25,874	301	4,200	2,780	1	3	220

Numerical and other references will be found on pages 556 through 559.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Doctor's Hospital [1-3]	Washington, D. C.	F. O. Coe	21,187	49	8,137	1,256	2	5	225
Georgetown University Hospital [1-3]	Washington, D. C.	W. E. Baensch	23,867	14	3,450	1,725	3	8	115
George Washington University Hospital [1-3]	Washington, D. C.	W. W. Stanbro	24,508	11	6,817	175	2	5	150
Veterans Admin. Hospital [1-3]	Martinsburg, W. Va.	H. Litwer	19,655	...	1,152	30	1	1	...
Veterans Admin. Hospital [1-3-108]	Washington, D. C.	S. R. Bersack	15,042	4	2,195	68	1	3	...
Washington Hospital Center									
Central Dispensary and Emergency Hospital [1-3]	Washington, D. C.	J. E. Wissler	17,931	4	2,163	...	1	3	[illegible]
Garfield Memorial Hospital [1-3]	Washington, D. C.	R. M. Caulk	17,456	16	6,172	605	..	..	[illegible]
Jackson Memorial Hospital [1-3]	Miami, Fla.	R. L. Parks	67,391	87	5,479	608	2	6	[illegible]
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	R. A. Elmer	19,143	53	3,093	173	1	2	225
Grady Memorial Hospital [1-3]	Atlanta, Ga.	H. S. Weens	49,402	60	7,043	461	2	6	100
Piedmont Hospital [1]	Atlanta, Ga.	E. G. Smith, Jr.	7,222	17	645	.....	1	1	225
Veterans Admin. Hospital [1-3-114]	Atlanta, Ga.	S. Krantz	16,690	6	3,945	512	2	2	...
Eugene Talmadge Memorial Hospital [1]	Augusta, Ga.	R. Wigh	3,806	.....	332	44	3	7	250
University Hospital [1]	Augusta, Ga.	S. W. Brown	19,878	9	1,139	73	2	6	300
Veterans Admin. Hospital [1-3-115]	Augusta, Ga.	S. M. Roberts	21,697	3	2,103	79	1	1	...
Emory University Hospital [1-3]	Emory University, Ga.	H. S. Weems	22,983	3,739	.....	.....	1	3	225
Augustana Hospital [1-3]	Chicago	D. S. Beilin	15,369	.....	1,646	.....	1	3	150
Cook County Hospital [1-3]	Chicago	I. F. Hummon	115,776	130	20,280	1,499	2	17	200
Illinois Masonic Hospital [1-3]	Chicago	J. H. Gilmore	23,632	22	2,125	58	1	1	115
Mercy Hospital [1-3]	Chicago	W. Furey	20,610	122	8,436	200	1	3	300
Michael Reese Hospital	Chicago	B. Levine-E. Uhlmann	35,007	2,234	11,152	49	4	8	125
Mount Sinai Hospital [1-3]	Chicago	J. Arendt	25,030	36	5,538	765	2	6	125
Northwestern University Medical Center		E. Barth	......	.....	.....	.....	..	17	...
= Chicago Wesley Memorial Hospital [1-3]	Chicago	A. H. Cannen	11,323	.....	2,458	144	..	..	125
Children's Memorial Hospital	Chicago	H. White	......	.....	.....	.....	..	..	...
= Passavant Memorial Hospital [1-3]	Chicago	R. B. Lewis	16,845	.....	1,167	.....	..	..	[illegible]
= Veterans Admin. Research Hospital	Chicago	E. G. Warnick	13,500	6	5,186	219	..	..	...
= Evanston Hospital [1-3]	Evanston	R. G. Willy-A. Hamann	30,539	35	4,208	437	..	..	225
Presbyterian Hospital [1-3]	Chicago	F. H. Squire	34,256	28	3,527	884	2	4	125
Provident Hospital [1-3]	Chicago	W. P. Quinn	8,745	87	1,687	88	1	3	200
St. Luke's Hospital [1-3]	Chicago	E. H. Jenkinson	33,052	21	4,508	125	2	6	125
University of Chicago Clinics [1-3]	Chicago	P. C. Hodges	40,313	110	14,470	702	4	12	200
University of Illinois Research and Educational Hospitals [1-3]	Chicago	R. A. Harvey	47,979	60	12,079	...	3	11	125
St. Francis Hospital [1]	Evanston, Ill.	A. C. Ledoux	31,660	17	2,385	239	1	3	175
Little Company of Mary Hospital	Evergreen Park, Ill.	W. W. Furey	34,730	42	3,231	255	1	3	175
Veterans Admin. Hospital [1]	Hines, Ill.	F. L. Hussey	67,014	70	11,692	1,368	6	8	...
St. Francis Hospital [1-3]	Peoria, Ill.	P. R. Dirkse-D. F. Anderson	23,415	12	3,419	401	1	2	225
Carle Hospital Clinic [3]	Urbana, Ill.	C. Gianturco	23,620	46	2,031	501	1	3	250
Clinic Hospital [1-3-125]	Bluffton, Ind.	R. E. Bishop	23,058	7	1,253	57	1	1	300
Indiana University Medical Center and Affiliated Hospitals		J. A. Campbell	......	.....	.....	.....	..	18	...
= Indianapolis General Hospital [1]	Indianapolis	W. Tosick	42,074	66	4,559	204	1	3	225
= Indiana University Medical Center Hospital [1]	Indianapolis	J. A. Campbell	26,974	126	5,660	1,300	4	12	165
= Veterans Admin. Hospital [1-3]	Indianapolis	P. C. Harding	20,063	12	1,629	89	..	..	...
Methodist Hospital [1]	Indianapolis	H. C. Ochsner	47,146	90	5,706	1,197	1	3	225
Iowa Methodist Hospital [1-3]	Des Moines, Iowa	A. B. Phillips	16,430	19	1,231	161	1	2	175
Veterans Admin. Hospital [1-3-120]	Des Moines, Iowa	P. J. Trier	31,405	2	1,469	407	1	3	...
State University of Iowa Hospitals [1-3]	Iowa City	E. F. Van Epps	58,659	103	16,369	...	3	9	110
Veterans Admin. Hospital [1-3]	Iowa City	J. G. Baron	19,837	18	5,843	124	2	4	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	G. Tice	31,218	116	6,111	328	2	4	125
Veterans Admin. Hospital [1]	Kansas City, Mo.	M. F. Westfall	28,113	2	1,519	101	..	..	...
St. Francis Hospital [1-3]	Wichita, Kan.	J. R. Kline	20,590	9	3,686	198	1	2	275
St. Joseph Infirmary [1-3]	Louisville, Ky.	S. E. Johnson-J. Love	28,974	122	4,674	1,558	1	3	210
University of Louisville Hospitals		E. L. Pirkey	......	.....	.....	.....	3	9	...
Louisville General Hospital [1-3-158]	Louisville, Ky.	E. L. Pirkey	36,555	25	1,946	86	..	..	83
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. [illegible] Shaw	19,058	5	1,302	161	..	..	...
Charity Hospital of Louisiana [1]	New Orleans	A. [illegible]	170,617	377	52,959	3,128	5	11	100
Hotel Dieu [1]	New Orleans	H. [illegible]	21,094	.....	1,904	423	1	3	200
Ochsner Foundation Hospital [1]	New Orleans	E. H. Little	49,098	.....	3,167	315	2	6	225
Southern Baptist Hospital [1-3]	New Orleans	L. J. Bristow, Jr.	25,824	11	7,072	342	1	3	225
Touro Infirmary [1]	New Orleans	A. Payzant	32,289	29	3,016	.....	1	3	125
Veterans Admin. Hospital [1-3]	New Orleans	C. P. Oderr	17,919	6	6,100	90	2	5	...
Confederate Memorial Medical Center [1]	Shreveport, La.	W. H. Carroll	41,854	50	10,337	731	2	6	125
Eastern Maine General Hospital [1-3]	Bangor, Maine	H. A. Smith	20,279	36	2,492	453	1	2	160
Central Maine General Hospital [1]	Lewiston, Maine	C. F. Miller	11,747	40	1,558	69	..	1	225
Maine Medical Center [1]	Portland, Maine	J. F. [illegible]	21,912	62	3,616	102	2	2	125
Baltimore City Hospital [1-3]	Baltimore	J. De[illegible]	27,321	8	811	308	2	4	50
Johns Hopkins Hospital [1-3]	Baltimore	R. H. Morgan	69,371	231	11,143	11,143	3	9	150
Mercy Hospital [1-3]	Baltimore	E. R. Dana	23,647	25	981	.....	..	1	[illegible]
Sinai Hospital [1-3-157]	Baltimore	J. O. Salik	21,293	26	876	.....	1	3	[illegible]
University Hospital [1-3]	Baltimore	J. M. Dennis	55,146	174	6,290	440	3	7	[illegible]
Washington County Hospital [1]	Hagerstown, Md.	S. H. Macht	23,603	29	1,962	474	1	1	[illegible]
Beth Israel Hospital [1-3-162]	Boston	F. Fleischner	22,299	3	1,299	76	2	5	[illegible]
Boston City Hospital [1-3]	Boston	M. Ritvo	78,398	28	3,056	267	..	13	[illegible]
Lahey Clinic [1-3-167-168-170]	Boston	M. I. Smedal	71,382	13	8,618	823	4	4	[illegible]
Massachusetts General Hospital [1-3]	Boston	L. L. Robbins	74,000	309	18,085	.....	3	8	[illegible]
Massachusetts Memorial Hospitals [1-3]	Boston	G. Levene	13,329	4	1,707	132	2	4	[illegible]
New England Center Hospital [1-3]	Boston	A. Ettinger	45,702	2	2,120	46	1	3	[illegible]
New England Deaconess Hospital [1-3]	Boston	J. H. Marks	22,025	60	5,558	77	1	3	[illegible]
Peter Bent Brigham Hospital [1-3-187]	Boston	J. B. Dealy, Jr.	27,301	13	1,837	.....	2	9	[illegible]
Children's Medical Center	Boston	E. B. D. Neuhauser	22,947	.....	2,419	.....	2	4	[illegible]
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	E. G. Wissing	37,538	2	3,590	83	3	5	...
Cambridge City Hospital [1-3]	Cambridge, Mass.	F. A. Herzan	15,890	9	1,012	.....	1	2	[illegible]
Mount [illegible] Associated Hospitals		R. Schatzki	......	.....	.....	.....	..	..	[illegible]
Moun[illegible]	Cambridge, Mass.	....	17,883	9	1,676	57	..	1	[illegible]
Faulk[illegible]	Boston	L. E. Hawes	10,470	.....	1,098	25	..	..	[illegible]
Lemu[illegible]	Boston	....	......	.....	.....	.....	..	..	[illegible]
St. Joseph Mercy Hospital	Ann Arbor, Mich.	S. W. Donaldson	27,851	34	1,877	190	1	3	[illegible]
University Hospital [1-3-180]	Ann Arbor, Mich.	F. J. Hodges	58,621	134	14,749	585	6	18	[illegible]
Leila Y. Post Montgomery Hospital [1-3]	Battle Creek, Mich.	S. P. Barden	12,956	45	1,603	140	..	1	[illegible]
Grace Hospital [1-3]	Detroit	C. K. Hasley	38,373	48	5,128	1,545	1	4	[illegible]
Harper Hospital [1-3-200]	Detroit	L. Reynolds	27,552	300	22,500	298	3	9	[illegible]
Henry Ford Hospital [1-3]	Detroit	W. R. Eyler	75,319	94	4,350	307	5	15	[illegible]
Mount Carmel Mercy Hospital [1-3]	Detroit	J. M. Grace	49,080	10	3,740	164	2	4	[illegible]
Providence Hospital [1]	Detroit	W. A. Irwin	31,954	276	6,032	210	1	3	[illegible]
Sinai Hospital [1-3]	Detroit	H. Feigelson	16,500	8	2,671	12	1	2	[illegible]
Wayne State [illegible] Hospitals									
Veterans A[illegible]	Dearborn, Mich.	E. E. Levine	28,242	8	2,580	63	2	6	...
Detroit Mc[illegible]	Detroit	....	......	.....	.....	.....	..	..	[illegible]
Herman K[illegible]	Detroit	H. E. Campbell	278,564	.....	.....	.....	2	2	[illegible]
Receiving [illegible]	Detroit	J. F. Lofstrom	85,814	44	6,041	491	6	16	[illegible]

Numerical and other references will be found on pages 556 through 559.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	J. Zbikowski	50,647	16	2,853	68	3	3	316
Hurley Hospital [1-3]	Flint, Mich.	D. R. Limbach	53,132	15	1,392	815	2	6	325
St. Joseph Hospital [1-3]	Flint, Mich.	J. E. Livesay	21,293	30	231	5	1	3	400
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	H. C. Jones	20,291	17	3,174	53	1	2	275
Butterworth Hospital [1-3]	Grand Rapids, Mich.	E. Wabby	22,379	65	3,938	392	1	3	300
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	J. Morton	25,870	49	2,991	.....	1	2	325
Swedish Hospital [1-3]	Minneapolis	L. G. Iosrom	33,564	19	3,471	3,471	1	2	200
University of Minnesota Hospitals [1-3-208]	Minneapolis	H. O. Peterson	59,303	210	12,995	1,000	5	17	185
Veterans Admin. Hospital [1-3-211]	Minneapolis	J. Jorgens	51,446	32	3,052	510	5	11	...
Mayo Foundation [1-3]	Rochester, Minn.	H. M. Weber	264,914	1,480	29,064	819	6	20	175
Charles T. Miller Hospital [1-3]	St. Paul, Minn.	H. O. Peterson	17,081	68,103	6,782	.....	1	3	225
University	Jackson, Miss.	S. Sloan	......	.....	.....	.....	2	6	250
University	Columbia, Mo.	......	......	.....	.....	.....	..	..	...
Menorah	ansas City, Mo.	D. S Dann	13,833	20	716	289	1	3	200
Research and Affiliated Hospitals		......	......	.....	.....	.....	..	12	...
Veterans Admin. Hospital [1-3-134]	Wadsworth, Kan.	R. F. Davis	22,695	1	1,753	279	4	10	...
Children's Mercy Hospital	Kansas City, Mo.	A. B. Smith	8,443	.....	.....	15	..	..	...
Kansas City General Hospital No. 2 [1-3]	Kansas City, Mo.	J. Ramos	17,124	9	353	9	1	3	200
Research Hospital [1-3]	Kansas City, Mo.	......	17,082	52	1,792	40	4	12	250
Veterans Admin. Hospital [1]	Kansas City, Mo.	M. F. Westfall	28,113	2	1,519	101	..	..	...
St. Joseph Hospital	Kansas City, Mo.	C. E. Virden	18,807	141	3,627	169	1	4	250
St. Luke's Hospital [1-3]	Kansas City, Mo	L. A. Scarpellino	14,520	50	1,916	79	1	3	225
Barnes Hospital [1-3]	St. Louis	H. Wilson	61,209	320	12,906	.....	5	15	200
Homer G. Phillips Hospital [1-3]	St. Louis	W. E. Allen, Jr.	30,399	102	2,506	7	2	5	201
Jewish Hospital [1-3]	St. Louis	H. R. Senturia	19,545	39	4,943	744	1	3	100
St. Louis City Hospital [1-3]	St. Louis	D. C. Weir	48,489	44	2,761	154	2	6	92
St. Mary's Group of Hospitals [1-3]	St. Louis	L. Sante	28,836	70	3,091	190	1	3	100
Veterans Admin. Hospital [1-3]	St. Louis	S. Kamberg	19,262	9	5,520	192	2	6	...
Creighton Memorial-St. Joseph's Hospital	Omaha	J. J. Kelly, Sr.	18,520	30	2,107	144	1	3	210
Nebraska Methodist Hospital [1-3-221]	Omaha	H. B. Hunt	12,907	124	5,976	1,002	1	2	300
University of Nebraska Hospital [1-3]	Omaha	H. B. Hunt	14,062	74	1,906	297	2	4	175
Veterans Admin. Hospital [1-3]	Omaha	H. B. Saichek	20,674	2	1,860	42	1	3	...
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	L. K. Sycamore	30,892	91	3,159	341	2	6	218
Our Lady of Lourdes Hospital	Camden, N. J.	......	......	.....	.....	.....	..	..	...
Veterans Admin. Hospital [1-3]	East Orange, N. J.	J. R. Nahon	23,837	.....	2,662	32	1	3	...
Hackensack Hospital [1-3]	Hackensack, N. J.	E. J. Ryan	13,420	10	2,304	218	1	3	150
Morristown Memorial Hospital [1-3]	Morristown, N. J.	F. Reed, Jr.	13,425	8	2,178	245	1	1	250
Newark Beth Israel Hospital [1-3]	Newark, N. J.	N. J. Furst	14,261	45	4,434	171	1	3	100
Albany Hospital [1-3]	Albany, N. Y.	J. F. Roach	29,639	62	8,605	.....	2	6	160
Veterans Admin. Hospital [1-3]	Albany, N. Y.	H Thomas	34,738	.....	2,123	30	1	3	...
Beth-El Hospital [1-3-275]	Brooklyn, N. Y.	M Dannenberg	17,394	71	6,953	.....	1	3	125
Brooklyn Hospital [1-3]	Brooklyn, N. Y.	J. H. Wentworth	22,520	41	3,401	210	1	3	200
Cumberland Hospital [1-3-233]	Brooklyn, N. Y.	E. Mendelson	22,063	2	441	90	1	2	104
Jewish Hospital [1-3]	Brooklyn, N. Y.	S. Schwartz	28,538	47	7,222	.....	2	5	100
Kings County Hospital Center	Brooklyn, N. Y.	H. Z. Mellins	143,478	255	21,255	1,062	3	10	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	R. L. Pinck	17,416	20	2,173	20	2	4	156
Methodist Hospital [1-3]	Brooklyn, N. Y.	N. F. Bartone	18,147	19	1,552	72	1	2	175
Veterans Admin. Hospital [1-3-233]	Brooklyn, N. Y.	W. Schlein	28,323	.....	3,991	118	2	2	...
Buffalo General Hospital [1-3]	Buffalo	G J. Culver	26,779	85	8,221	.....	1	4	175
Deaconess Hospital [1-3]	Buffalo	R. Seibel	13,591	29	4,498	97	1	1	300
Edward J. Meyer Memorial Hospital [1-3]	Buffalo	E. G. Eschner	38,160	22	803	557	2	6	248
Millard Fillmore Hospital [1-3]	Buffalo	E H. Schnap.	27,436	.....	1,782	382	1	3	285
Roswell Park Memorial Institute [1-3-240]	Buffalo	F. Lessman-W. T. Murphy.	32,448	658	56,152	3,716	7	13	300
Veterans Admin. Hospital [1-3]	Buffalo	K. Flachs	23,486	.....	2,437	87	1	2	...
Flushing Hospital and Dispensary [1-3-253]	Flushing, N. Y.	M. Pomeranz	16,415	25	758	44	1	3	175
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	H. R. Zatzkin	32,567	32	10,654	606	2	4	225
Queens General Hospital [1-3]	Jamaica, N. Y.	A V. Shapiro-L. B. Goldman	59,427	74	5,857	1,114	2	6	105
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y	B D. Jay	22,137	15	2,007	266	1	2	225
Long Island Jewish Hospital [1-3-257]	New Hyde Park, N. Y.	B. S. Epstein	16,189	.....	967	49	1	3	75
Bellevue Hospital Center Div III—New York University College of Medicine	New York City	M Poppel	180,961	189	6,830	1,377	3	11	74
Beth Israel Hospital [1-3-2.4]	New York City	A. Geffen	16,072	10	2,974	4	2	4	140
Bronx Hospital [1-3]	New York City	A. J. Bernstein-J. R. Freid..	17,720	9	2,493	150	1	2	100
Bronx Municipal Hospital Center [1-3]	New York City	M. Elkin	36,009	2	512	4	4	12	105
Francis Delafield Hospital [1-3]	New York City	W. Seaman	10,172	16	18,169	633	2	9	105
Hospital for Joint Diseases [1-3-274]	New York City	M. M. Pomeranz	26,595	20	7,571	136	1	3	80
Lenox Hill Hospital [1-3]	New York City	F. H. Ghiselin	22,582	9	3,286	68	1	3	240
Lincoln Hospital [1-3]	New York City	R. Feig	37,755	9	672	65	1	2	105
Memorial Center for Cancer and Allied Diseases	New York City	R. S. Sherman-J. J. Nickson	73,187	714	48,986	.....	2	26	150
James Ewing Hospital [1-3]	New York City	......	......	.....	.....	.....	..	..	...
Memorial Hospital [1-3]	New York City	......	......	.....	.....	.....	..	..	...
Montefiore Hospital [1-3]	New York City	H G. Jacobson	51,146	18	16,284	1,438	3	9	187
Mount Sinai Hospital [1-3]	New York City	B. S. Wolf	44,214	91	6,953	.....	2	6	75
New York Hospital [1-3]	New York City	J. A. Evans	87,047	8,581	9,313	732	6	16	164
New York Medical College—Metropolitan Medical Center		F. J. Borrelli	......	.....	.....	.....	..	10	...
= Flower and Fifth Avenue Hospitals	New York City	......	41,960	33	1,202	272	1	3	...
=	New York City	......	56,059	18	10,137	3,629	2	4	104
New New chool and Hospital [1-3] Medical Center	New York City	W. H. Shehadi	10,545	28	1,262	421	1	2	125
Un	New York City	M. Poppel	18,455	260	1,911	2,054	2	4	85
Presbyterian Hospital [1]	New York City	W. B. Seaman	124,828	108	18,542	3,255	4	12	250
Roosevelt Hospital [1-3]	New York City	A. A. Dunn	48,797	4,155	2,771	197	2	6	133
St. Luke's Hospital	New York City	H. F. Hempel	40,903	10	5,098	.....	2	6	100
St. Vincent's Hospital [1-3]	New York City	F. F. Ruzicka, Jr.	35,956	21	3,774	399	2	4	125
Veterans Admin. Hospital [1-3]	New York City (Bronx)	J. Stein-B. Roswit	64,495	202	11,485	1,224	3	11	...
Genesee Hospital [1-3]	Rochester, N. Y.	G. J. Baron	24,521	20	3,283	386	1	1	240
Rochester General Hospital [1-3]	Rochester, N. Y.	E. F. Merrill	24,891	74	5,163	1,190	1	3	125
St. Mary's Hospital [1-2]	Rochester, N. Y.	A. V. Winchell	19,497	138	74	713	1	3	200
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	G. H. Ramsey	32,693	270	2,298	306	3	9	117
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	C. Hale	35,860	130	5,198	901	2	6	283
Veterans Admin. Hospital	Syracuse, N. Y.	......	15,870	1,016	50	6	..	..	...
Grasslands Hospital [1-3]	Valhalla, N. Y.	A. G. Debbie	20,442	12	2,046	909	1	3	175
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	E. H. Wood	36,074	90	2,075	75	2	6	156
Duke University Affiliated Hospitals		......	......	.....	.....	.....	..	..	...
= Duke Hospital [1-3]	Durham, N. C.	R. J. Reeves	69,646	225	6,141	488	5	12	102
Veterans Admin. Hospital	Durham, N. C.	......	......	.....	.....	.....	..	..	...
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	I. Meschan	3,164	21	3,164	159	2	6	125
Bismarck Hospital [3]	Bismarck, N. D.	H. M. Berg	28,604	112	2,889	816	1	3	300

Numerical and other references will be found on pages 556 through 559.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Akron General Hospital [1]	Akron, Ohio	C. J. Miller	25,002	13	3,666	171	1	3	250
Akron City Hospital [1-8]	Akron, Ohio	F. T. Moore	50,516	58	7,945	277	1	4	250
Mercy Hospital [1-8]	Canton, Ohio	T. J. Dodd	26,178	34	3,178	.....	1	3	300
University of Cincinnati College of Medicine Hospital Group									
Cincinnati General Hospital [1-8]	Cincinnati	B. Felson	49,328	.....	5,043	489	4	13	85
Good Samaritan Hospital [1-8]	Cincinnati	J. E. McCarthy	29,690	55	4,068	32	1	2	250
Jewish Hospital [1-3]	Cincinnati	L. Rosenberg	23,445	87	2,070	334	1	3	165
City Hospital [1-8]	Cleveland	H. Hauser	33,229	48	3,420	1,506	3	9	125
Cleveland Clinic Hospital [1-8]	Cleveland	C. R. Hughes	99,673	31	7,237	229	3	12	175
Huron Road Hospital [1-3]	Cleveland	W. D. Heinrich	32,804	54	2,291	399	1	3	210
Mount Sinai Hospital [1-8]	Cleveland	H. A. Mahrer	26,958	21	3,857	.....	1	3	215
St. Luke's Hospital [1-3]	Cleveland	D. D. Brannan	36,324	54	4,427	491	1	3	100
St. Vincent Charity Hospital [1-8]	Cleveland	E. J. O'Malley	22,061	14	1,290	.....	1	3	250
University Hospitals [1-3]	Cleveland	H. L. Friedell	62,325	37	7,092	299	2	6	125
Veterans Admin. Hospital [1-8]	Cleveland	M. D. Sachs	35,192	14	2,343	88	1	3	...
Ohio State University Hospitals									
University Hospital [1-8-310]	Columbus, Ohio	S. W. Nelson	53,123	230	13,465	673	5	15	175
Miami Valley Hospital [1-8]	Dayton, Ohio	G. A. Nicoll	27,425	71	2,797	.....	1	3	300
Veterans Admin. Hospital [1-8]	Dayton, Ohio	H. Plaut	24,677	2	1,108	43	1	1	...
Elyria Memorial Hospital [1-8]	Elyria, Ohio	D. A. Russell	9,540	19	555	112	..	1	270
St. Joseph's Hospital [1]	Lorain, Ohio	D. Russell	19,596	3,114	214	27	1	3	300
Mercy Hospital [1-8]	Toledo, Ohio	M. M. Thompson	16,388	29	711	.....	..	1	275
Youngstown Hospital [1-8]	Youngstown, Ohio	E. C. Baker	29,507	26	7,560	2,218	1	3	175
University of Oklahoma Affiliated Hospitals									
University Hospital [1-8]	Oklahoma City	P. E. Russo	35,558	97	11,741	1,445	2	6	...
Wesley Hospital [1]	Oklahoma City	E. H. Kalmon	13,056	38	3,101	40	1	1	250
Veterans Admin. Hospital [1-8-325]	Oklahoma City	S. M. Glasser	34,019	3	2,694	389	1	3	...
St. John's Hospital [1-8]	Tulsa, Okla.	L. M. Pascucci	11,314	.....	1,595	140	1	1	175
Providence Hospital [1-8]	Portland, Ore.	S. Rees	14,724	35	1,382	.....	1	3	275
University of Oregon Medical School									
Hospitals and Clinics [1]	Portland, Ore.	C. T. Dotter	32,978	17	1,965	.....	2	6	100
Abington Memorial Hospital [1-8]	Abington, Pa.	C. H. Sillars	24,397	46	3,563	.....	1	3	150
Sacred Heart Hospital [1-3]	Allentown, Pa.	K. W. Taber-C. L. Mengel	12,111	536	5,443	679	1	3	250
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	R. M. Harvey	23,237	75	3,004	557	1	3	200
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	J. L. Williams	26,377	45	1,623	4,320	1	4	175
Thomas M. Fitzgerald Mercy Hospital [1-8]	Darby, Pa.	B. P. Widmann	16,633	103	2,151	.....	1	3	100
Hamot Hospital [1-8]	Erie, Pa.	R. D. Bacon	20,003	2,042	157	68	1	3	250
St. Vincent's Hospital [1-8]	Erie, Pa.	R. Bacon	17,763	11	1,182	45	1	2	200
Albert Einstein Medical Center									
Northern Division [1-3]	Philadelphia	J. Gershon-Cohen	27,177	88	7,456	811	2	6	150
Southern Division [1-3]	Philadelphia	H. Isard	20,452	39	2,853	.....	1	3	150
Chester County Hospital [1]	West Chester, Pa.	J. Gershon-Cohen	3,453	6	269	612	1	1	150
Chestnut Hill Hospital [1]	Philadelphia	R. P. Barden	9,453	16	1,866	224	1	2	250
Episcopal Hospital [1-8]	Philadelphia	H. Fisher	24,610	33	1,995	221	1	1	150
Germantown Dispensary and Hospital [1-3]	Philadelphia	B. R. Young	26,094	52	5,568	867	1	3	175
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	A. Finkelstein	22,169	17	3,222	314	5	10	100
Hahnemann Medical College and Hospital [1-3]	Philadelphia	J. S. Lehman	32,869	291	3,119	135	2	6	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	E. P. Pendergrass	171,958	165	15,067	3,467	6	21	...
Children's Hospital	Philadelphia	...	......	.....	.....	.....	..	..	...
Jeanes Hospital [1-8]	Philadelphia	E. P. Pendergrass	5,954	10	783	110	1	1	300
Jefferson Medical College Hospital [1-3]	Philadelphia	R. L. Nichols	50,728	163	4,485	179	..	2	150
Nazareth Hospital [1]	Philadelphia	J. S. Fetter	19,191	30	2,109	394	1	3	300
Pennsylvania Hospital [1-8]	Philadelphia	P. A. Bishop	20,801	2,868	2,702	300	2	2	100
Philadelphia General Hospital [8]	Philadelphia	B. Widmann	150,023	653	9,712	210	4	12	125
Presbyterian Hospital [1-8]	Philadelphia	E. L. Lame	12,266	50	2,967	.....	1	3	150
Temple University Hospital [1-8]	Philadelphia	H. M. Stauffer-R. Robbins	38,780	37	6,363	129	6	18	...
Veterans Admin. Hospital [1-8]	Philadelphia	G. T. Wohl	28,319	21	2,590	555	1	6	...
Allegheny General Hospital [1]	Pittsburgh	T. B. Childs	29,424	24	1,454	1,430	1	4	200
Mercy Hospital [1-8]	Pittsburgh	C. R. Perryman	39,779	40	16,232	.....	2	6	250
Montefiore Hospital [1-8-338]	Pittsburgh	H. W. Friedman	17,005	.....	2,889	286	1	2	250
Health Center Hospitals of the University of Pittsburgh									
School of Medicine	Pittsburgh	...	58,657	32	3,288	34	3	10	125
Children's Hospital		B. Girdany	......	.....	.....	.....	..	..	...
Elizabeth Steel Magee Hospital		C. Chasler	......	.....	.....	.....	..	..	...
Presbyterian Hospital		E. C. Lasser	......	.....	.....	.....	..	..	...
St. Francis General Hospital and Rehabilitation Institute [1-8]	Pittsburgh	G. Alexander	20,686	19	2,072	.....	2	3	200
Veterans Admin. Hospital [1-8]	Pittsburgh	S. Lewis	24,048	85	6,700	115	1	3	...
Western Pennsylvania Hospital [1-8]	Pittsburgh	D. H. Rice-L. S. Sherman	29,268	59	3,429	519	1	2	250
Reading Hospital [1-8]	Reading, Pa	...	15,252	8	5,864	.....	2	6	250
Robert Packer Hospital [1-8]	Sayre, Pa.	J. T. Littleton	23,250	20	4,022	457	2	4	200
Rhode Island Hospital [1-8]	Providence, R. I.	L. A. Martineau	35,496	21	1,856	294	1	3	100
Medical College of South Carolina									
Teaching Hospitals [1]	Charleston, S. C.	H. S. Pettit	27,251	59	4,598	35	2	4	175
Spartanburg General Hospital [1]	Spartanburg, S. C.	H. E. Plenge	39,320	35	3,232	448	1	1	200
Baroness Erlanger Hospital [1-8]	Chattanooga, Tenn.	C. W. Reavis	25,780	34	3,575	167	2	2	250
Baptist Memorial Hospital [1-8]	Memphis, Tenn.	J. E. Whiteleather	27,374	319	3,076	127	1	4	275
City of Memphis Hospitals [1-8]	Memphis, Tenn.	C. Heacock	40,407	54	5,538	189	2	6	125
Methodist Hospital	Memphis, Tenn.	J. C. King	26,525	50	5,334	453	2	6	150
Veterans Admin. Hospital [1-8-344]	Memphis, Tenn.	B. E. Greenberg	61,696	7	6,939	219	1	4	...
George W. Hubbard Hospital [1-8]	Nashville, Tenn.	G. J. Tarleton, Jr.	9,212	24	1,246	86	1	3	125
Vanderbilt University Hospital [1-8]	Nashville, Tenn.	H. C. Francis	28,591	86	2,668	146	3	7	50
Veterans Admin. Hospital [1]	Nashville, Tenn.	D. E. Sherman	20,884	.....	2,694	282	1	3	...
Baylor University Hospital [1-3]	Dallas, Texas	J. E. Miller	28,409	91	9,449	.....	1	4	150
Parkland Memorial Hospital [1-3]	Dallas, Texas	F. J. Bonte	40,681	57	2,339	837	2	6	125
St. Paul's Hospital [1-3]	Dallas, Texas	G. D. Carlson	14,887	41	1,469	35	1	3	125
Veterans Admin. Hospital [1-8-348]	Dallas, Texas	B. K. Lovell	18,150	43	2,030	156	2	7	...
University of Texas Medical Branch Hospitals [1-8]	Galveston, Texas	R. N. Cooley	65,712	135	6,846	.....	3	9	160
Baylor University College of Medicine Affiliated Hospitals		V. P. Collins	......	.....	.....	.....	4	12	...
Jefferson Davis Hospital [1-8-354]	Houston, Texas	V. P. Collins	58,960	53	1,609	300	2	8	75
Methodist Hospital [1-8]	Houston, Texas	C. H. Burge	20,835	10	2,004	.....	..	2	160
Veterans Admin. Hospital [1-8]	Houston, Texas	H. L. Barton	41,029	27	5,286	152	1	4	...
Hermann Hospital [1-8-351-352]	Houston, Texas	L. M. Vaughan	46,408	39	4,941	354	1	3	175
St. Joseph's Hospital [8-352]	Houston, Texas	C. W. Yates	22,583	14	2,921	55	1	1	[illegible]
University of Texas M. D. Anderson Hospital and Tumor Institute [1-8-357]	Houston, Texas	G. A. Fletcher	19,523	553	33,881	1,348	3	12	175
Veterans Admin. Hospital [1-8-364]	McKinney, Texas	B. K. Lovell	23,232	10	2,160	191	1	3	...
University of Texas Postgraduate Medical School Affiliated Hospitals		H. S. Wigodsky	......	.....	.....	.....	3	9	...
Baptist Memorial Hospital [1-8]	San Antonio, Texas	E. F. Lyon, Jr.	13,149	67	1,342	71	1	2	150
Robert B. Green Memorial Hospital [1-8]	San Antonio, Texas	B. B. Markette	35,697	31	1,688	148	1	2	150
Santa Rosa Hospital [1-8]	San Antonio, Texas	J. J. Wiesner	19,860	149	1,827	214	1	3	250

Numerical and other references will be found on pages 556 through 559.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Scott and White Memorial Hospitals [1-8]	Temple, Texas	A. W. Sommer	39,941	81	5,353	532	1	3	300
University of Utah Affiliated Hospitals		W. Christensen	.....	.....	.....	.....	..	..	...
Dr. W. H. Groves Latter-Day Saints Hospital [1-8]	Salt Lake City	E. Crowder	10,027	.....	640	25	1	3	225
Holy Cross Hospital [1-3]	Salt Lake City	R. R Meyer	8,051	9	1,709	.....	..	..	275
St. Mark's Hospital [1-3]	Salt Lake City	H. P. Plenk	.....	.....	.....	.....	1	1	175
SaltLake County General Hospital [1]	Salt Lake City	W. Christensen	17,419	21	4,333	258	3	9	150
Veterans Admin. Hospital [8]	Salt Lake City	D. W. Stowell	10,241	.....	.....	.....	1	3	...
University of Vermont Affiliated Hospitals		A. B. Soule, Jr.	.....	.....	.....	.....	2	5	...
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	F. W. Van Buskirk	12,319	.....	1,090	51	1	3	180
Mary Fletcher Hospital [1-3-371]	Burlington, Vt.	A. B. Soule, Jr.	16,653	109	4,752	181	1	3	167
University of Virginia Hospital [1-3]	Charlottesville, Va.	V. W. Archer	48,188	.....	6,224	311	2	6	50
Norfolk General Hospital [1-3]	Norfolk, Va.	J. Foster	16,779	27	3,208	.....	1	2	200
De Paul Hospital [1-3]	Norfolk, Va.	C. P. Wisoff	15,028	41	2,732	99	1	4	200
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	F B. Mandeville	43,374	136	4,527	503	1	5	75
Veterans Admin. Hospital [1-8-275]	Richmond, Va.	H. Goodman	25,626	6	3,001	107	1	3	...
Providence Hospital [1-8]	Seattle	E A. Addington	16,650	.....	557	122	1	2	250
Virginia Mason Hospital [1-8]	Seattle	T. Carlile	31,402	40	3,083	1,089	1	3	150
University Hospitals [1-3]	Madison, Wis.	M. T Harris	18,730	48	109	38	2	2	250
Sacred Heart Hospital [8]	Spokane, Wash.	E. Pohle	46,281	70	7,499	87	4	8	100
Columbia Hospital [1-3-377]	Milwaukee	S. A Morton	22,396	78	4,053	.....	1	1	245
Milwaukee County Hospital [1-3]	Milwaukee	J. L. Marks-M. Greenberg	51,491	45	5,361	447	2	6	207
Milwaukee Hospital [1-3]	Milwaukee	H. W. Hefke	64,774	147	9,053	.....	1	3	245
St. Joseph's Hospital [1-8]	Milwaukee	G. W. Sengpiel	24,488	28	3,958	350	1	3	280
St. Luke's Hospital [1-8]	Milwaukee	H. H. Wright	14,549	30	4,428	200	1	2	275
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	T. J. Pfeffer	39,579	21	9,426	111	1	3	...
San Juan City Hospital [1-3]	San Juan, P. R.	J. L. Becerra	16,923	18	3,088	.....	1	2	300
Veterans Admin. Hospital [1-8]	San Juan, P. R.	L. Ehrlich	9,805	.....	.....	.....	1	2	...

26. SURGERY

Residency programs in the following hospitals have been approved by the Council, the American Board of Surgery and the American College of Surgeons, through the Conference Committee on Graduate Training in Surgery, for FOUR OR MORE years of training, designed to qualify the trainee for examination by the American Board of Surgery as a Group I candidate.

Hospitals, 307; Assistant Residencies and Residencies, 4,063

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES AIR FORCE							
U. S. Air Force Hospital	San Antonio, Texas	D. S. Wenger	3,796	18	6	15	...
UNITED STATES ARMY							
Letterman Army Hospital [1-3]	San Francisco	J. Graham	1,210	17	3	12	...
Fitzsimons Army Hospital [1]	Denver	C. S. Lyter	681	5	2	8	...
Army Medical Center [1-3]	Washington, D. C.	J. H. Forsee	1,164	25	4	16	...
Brooke Army Hospital [1-3]	San Antonio, Texas	W. W. Nichol	2,021	39	4	16	...
Tripler Army Hospital [1]	Honolulu, T. H.	W. F. Bowers	8,567	29	3	12	...
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Oakland, Calif.	M. L. Gerber	2,711	21	2	8	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. M. Hanner	2,953	31	3	12	...
U. S. Naval Hospital [1-8]	Bethesda, Md.	R. B. Brown	1,876	..	2	8	...
U. S. Naval Hospital [1]	Chelsea, Mass.	L. L. Haynes	2,397	10	1	4	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	R. N. Grant	1,636	52	2	8	...
U. S. Naval Hospital [1]	Philadelphia	P. J. McNamara	2,275	25	2	8	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	J. J. Zuska	4,582	22	3	10	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital	San Francisco	W. A. Williamson	3,025	21	1	4	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1-3]	Washington, D. C.	B. Syphax	1,156	27	3	11	218
NONFEDERAL AND VETERANS ADMINISTRATION							
University of Alabama Medical Center							
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	C. Lyons	6,360	50	14	36	108
Veterans Admin. Hospital [1]	Birmingham, Ala.	R. A. Dillard	634	23	5	13	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	J. M. Slaughter	2,146	16	2	6	225
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	M. Wood	658	20	2	7	300
University Hospital [1]	Little Rock, Ark.	J. H. Growdon	1,283	25	4	14	150
Veterans Admin. Hospital [1-3-55]	Little Rock, Ark.	R. J. Lipin	2,707	64	2	8	...
San Joaquin General Hospital [1]	French Camp, Calif.	W. Brock	907	26	2	7	260
General Hospital of Fresno County [1-3-77]	Fresno, Calif.	R. J. Rife	1,282	39	2	6	300
Veterans Admin. Hospital [1-8-59-62]	Long Beach, Calif.	H. J. Movius	1,969	44	5	14	...
Cedars of Lebanon Hospital [1-3]	Los Angeles	D. State	2,425	15	3	9	250
Los Angeles County Hospital [1]	Los Angeles	C. J. Berne	4,649	192	3	12	246
University of California Hospital [1-3]	Los Angeles	W. P. Longmire, Jr.	954	16	8	16	198
Veterans Admin. Hospital [1-3-62]	Los Angeles	J. S. Clarke	3,240	132	10	24	...
White Memorial Hospital [1-3]	Los Angeles	A. I. Kugel	1,262	18	1	4	150
Highland-Alameda County Hospital [1-70]	Oakland, Calif.	E. M. Taylor	1,927	44	8	16	200
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	A. L. Baritell	2,105	35	4	10	265
San Diego County General Hospital [1-3]	San Diego, Calif.	G. C. Franklin	1,054	50	4	10	175
Mount Zion Hospital [1-3]	San Francisco	A. L. Brown	1,546	17	3	7	150
San Francisco Hospital							
Stanford University Service [1-3]	San Francisco	C. Mathewson	1,463	45	1	8	195
University of California Service	San Francisco	O. F. Grimes	1,441	54	5	7	195
Stanford University Hospitals [1-3]	San Francisco	V. Richards	1,492	33	5	13	80
University of California Hospital [1-3]	San Francisco	L. Goldman	1,974	46	4	14	210
Veterans Admin. Hospital [1-3-79]	San Francisco	L. G. Brizzolara	1,456	39	4	13	...
Santa Clara County Hospital [1-3]	San Jose, Calif.	J. D. Lamon, Jr.	811	44	2	7	260
Santa Barbara General Hospital [1-3]	Santa Barbara, Calif.	R. J. Rhorer	265	5	..	..	...
Harbor General Hospital [1]	Torrance, Calif.	L. Cowley	1,514	65	4	14	246
St. Joseph's Hospital	Denver	S. B. Childs	2,144	16	3	6	200
University of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	H. Swan	1,267	54	4	17	180
Denver General Hospital [1-3]	Denver	D. Watkins	1,431	84	..	..	157

Numerical and other references will be found on pages 556 through 559.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Monthly)
Veterans Admin. Hospital [1-3-86]	Denver	B. Eiseman	2,075	62	5	19	...
St. Vincent's Hospital [1-3]	Bridgeport, Conn.	W. Curley, Jr.	6,689	48	2	8	250
Hartford Hospital [1-3-96]	Hartford, Conn.	W. A. Standish	5,584	61	9	24	150
New Britain General Hospital [1-3]	New Britain, Conn.	B. B. Clark	5,235	51	1	4	125
Grace-New Haven Community Hospital [1-3-97]	New Haven, Conn.	G. E. Lindskog-C. C. Bishop	3,845	76	6	23	[illegible]
Veterans Admin. Hospital [1-3]	Newington, Conn.	P. W. Fenney	1,258	15	6	13	...
Waterbury Hospital [1-3]	Waterbury, Conn.	A. E. Herrmann	4,545	64	1	4	125
Veterans Admin. Hospital [1-3-101]	West Haven, Conn.	W. W. Lindenmuth	1,824	38	..	7	...
Delaware Hospital [1-3]	Wilmington, Del.	D. J. Preston	3,336	74	2	5	125
Memorial Hospital [1-3]	Wilmington, Del.	J. C. Pierson	3,438	49	1	4	125
District of Columbia General Hospital [1-3]	Washington, D. C.	B. Blades-R. Coffey	1,442	53	2	8	225
Georgetown University Hospital [1-3]	Washington, D. C.	R. J. Coffey	3,717	56	6	20	[illegible]
George Washington University Hospital [1-3]	Washington, D. C.	B. Blades	6,717	35	4	11	150
Providence Hospital [1-3]	Washington, D. C.	P. Caulfield	1,830	8	2	8	250
Veterans Admin. Hospital [1-3-100]	Washington, D. C.	J. G. Lee	1,753	35	4	10	...
Washington Hospital Center							
Central Dispensary and Emergency Hospital [1-3]	Washington, D. C.	C. D. Briggs	3,680	32	4	12	[illegible]
Garfield Memorial Hospital [1-3]	Washington, D. C.	W. W. Chase	2,471	29	..	..	225
Veterans Admin. Hospital [1]	Coral Gables, Fla.	M. H. Todd	2,475	83	4	14	...
Duval Medical Center [1-3]	Jacksonville, Fla.	K. A. Morris	2,693	57	4	10	150
St. Vincent's Hospital [1-3-111]	Jacksonville, Fla.	F. Waas	4,312	35	2	8	225
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. J. Farrell	4,078	83	7	15	[illegible]
Grady Memorial Hospital [1-3]	Atlanta, Ga.	I. A. Ferguson	4,434	120	12	29	[illegible]
Piedmont Hospital [1]	Atlanta, Ga.	F. W. McRae	2,026	11	1	4	225
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	J. C. Thoroughman	1,834	36	5	17	...
Medical College of Georgia Medical Center							
Eugene Talmadge Memorial Hospital [1]	Augusta, Ga.	W. Moretz	228	14	6	20	250
University Hospital [1]	Augusta, Ga.	J. Sherman	2,357	18	5	16	200
Veterans Admin. Hospital [1-3]	Augusta, Ga.	C. M. Rhode	1,100	27	1	3	...
Emory University Hospital [1-3]	Emory University, Ga.	J. D. Martin, Jr.	5,796	37	6	7	[illegible]
Cook County Hospital [1-3]	Chicago	K. A. Meyer	13,410	199	8	30	[illegible]
Michael Reese Hospital	Chicago	N. N. Crohn	2,829	33	3	9	100
Mount Sinai Hospital [1-3]	Chicago	E. I. Greene	3,930	29	2	7	125
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital [1-3]	Chicago	W. Maddock	2,808	21	4	7	125
Passavant Memorial Hospital [1-3]	Chicago	L. Davis	1,809	11	3	6	50
Veterans Admin. Research Hospital [1]	Chicago	F. W. Preston	2,280	99	3	9	...
Evanston Hospital [1-3]	Evanston, Ill.	(See Listing of Evanston Hospital in Following Section.)					
Presbyterian Hospital [1-3]	Chicago	E. J. Beattie, Jr.	2,818	41	4	12	125
St. Luke's Hospital [1-3]	Chicago	B. C. Kilbourne	2,193	45	4	12	125
University of Chicago Clinics [1-3]	Chicago	L. R. Dragstedt	3,075	127	4	16	200
University of Illinois Research and Educational Hospitals [1-3]	Chicago	W. H. Cole	1,899	84	4	13	125
St. Francis Hospital [1]	Evanston, Ill.	D. P. Slaughter	3,404	37	2	8	175
Veterans Admin. Hospital [1-121-122]	Hines, Ill.	C. B. Puestow	3,065	74	11	48	...
[illegible] General Hospital [1]	Indianapolis	J. L. Leffel	1,565	30	4	16	[illegible]
[illegible] Medical Center Affiliated Hospitals							
[illegible] Medical Center Hospital [1]	Indianapolis	H. B. Shumacker, Jr.	1,127	70	5	14	125
Veterans Admin. Hospital [1-3]	Indianapolis	L. R. Radigan	1,185	75	1	3	...
Iowa Methodist Hospital [1-3-128]	Des Moines, Iowa	R. A. Dorner	5,071	44	2	8	175
Veterans Admin. Hospital [1-3-130]	Des Moines, Iowa	L. T. Palumbo	2,956	39	4	16	...
State University of Iowa Hospitals [1-3]	Iowa City	R. T. Tidrick	3,009	165	8	22	[illegible]
Veterans Admin. Hospital [1-3]	Iowa City	E. S. Brintnall	1 871	58	6	12	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	F. Allbritten, Jr.	1,397	53	6	20	125
Veterans Admin. Hospital [1]	Kansas City, Mo.	G. A. Higgins	1,523	27	..	..	...
Veterans Admin. Hospital [1-3-138]	Wadsworth, Kan.	J. E. Hirsch	582	29	3	8	...
Louisville General Hospital [1-3-139]	Louisville, Ky.	R. J. Noer	1,573	41	6	19	[illegible]
Veterans Admin. Hospital [1-3-144]	Louisville, Ky.	J. E. Hamilton	1,161	55	4	14	...
St. Joseph Infirmary [1-3]	Louisville, Ky.	R. Moore, Jr.	7,077	150	4	10	[illegible]
Charity Hospital of Louisiana							
Independent Unit [1]	New Orleans	L. J. O'Neil	2,232	38	3	11	100
Louisiana State University Unit [1-14]	New Orleans	J. D. Rives	8,780	89	6	22	[illegible]
Tulane University Unit [1]	New Orleans	O. Creech	8,456	56	6	22	100
Veterans Admin. Hospital [1-3]	New Orleans	L. K. Richardson	1,610	59	6	12	...
Confederate Memorial Medical Center [1]	Shreveport, La.	P. D. Abramson	3,353	55	6	16	125
Maine Medical Center [1]	Portland, Maine	J. M. Parker	1,907	37	2	8	125
Baltimore City Hospital [1-3]	Baltimore	M. M. Ravitch	1,061	53	6	19	50
Church Home and Hospital [1-3]	Baltimore	O. C. Brantigan	3,478	44	3	10	[illegible]
Franklin Square Hospital [1-3]	Baltimore	H. E. Wilgis	2,825	24	2	5	225
Johns Hopkins Hospital [1-3]	Baltimore	A. Blalock	4,177	80	3	11	150
Maryland General Hospital [1-3]	Baltimore	W. M. Firor	3,579	58	3	9	225
Mercy Hospital [1-3]	Baltimore	D. J. Pessagno	3,228	37	2	6	[illegible]
Sinai Hospital [1-3]	Baltimore	A. M. Seligman	2,784	39	6	13	110
Union Memorial Hospital [1]	Baltimore	E. S. Stafford	5,379	67	4	8	225
University Hospital [1-3]	Baltimore	R. W. Buxton	3,302	39	8	21	75
Veterans Admin. Hospital [1-3-159]	Fort Howard, Md.	J. M. Miller	1,156	20	4	10	...
Veterans Admin. Hospital [1-3]	Perry Point, Md.	R. T. Shackelford	1,076	21	1	4	[illegible]
Beth Israel Hospital [1-3-163]	Boston	J. Fine	2,479	31	6	14	[illegible]
Boston City Hospital [1-3]	Boston	....	.....	..	24	69	
I Surgical Service		C. G. Child, III	2,359	48	..	..	...
III Surgical Service		J. J. Byrne	2,373	64	..	..	...
V Surgical Service		J. E. Dunphy	2,314	60	..	..	...
Carney Hospital [3-169]	Boston	J. J. Todd	5,844	61	5	14	[illegible]
Massachusetts General Hospital [1-3]	Boston	E. D. Churchill	7,914	..	3	26	[illegible]
Massachusetts Memorial Hospitals [1-3-171]	Boston	R. H. Smithwick	1,791	27	6	20	100
New England Center Hospital [1-3-380]	Boston	A. A. Thibodeau	1,685	22	5	14	[illegible]
Peter Bent Brigham Hospital [1-3-180-380]	Boston	F. D. Moore	8,357	95	6	20	[illegible]
St. Elizabeth's Hospital [1-3-166]	Boston	J. W. Spellman	5,358	42	2	8	125
Veterans Admin. Hospital [1-3-170]	Boston (Jamaica Plain)	H. H. Faxon	2,788	64	8	24	...
Cambridge City Hospital [1-3]	Cambridge, Mass	J. B. Vernaglia	2,008	51	1	4	[illegible]
Springfield Hospital [1-3]	Springfield, Mass.	W. F. Hoyt	6,684	79	6	14	[illegible]
Memorial Hospital [1-3]	Worcester, Mass.	B. C. Wheeler	5,716	38	2	6	200
St. Vincent Hospital [1-3]	Worcester, Mass.	J. C. McCann	7,05[illegible]	56	4	9	...
Worcester City Hospital [1-3]	Worcester, Mass.	J. Maroney	2,058	46	2	6	[illegible]
St. Joseph Mercy Hospital	Ann Arbor, Mich.	E. T. Thieme	1,612	13	4	7	[illegible]
University Hospital [1-3]	Ann Arbor, Mich.	F. A. Coller	2,764	93	23	31	150
Veterans Admin. Hospital [1-3-101]	Dearborn, Mich.	C. G. Johnston	2,136	81	8	24	...
Detroit Memorial Hospital [1-3]	Detroit	J. Mark	4,740	32	1	4	[illegible]
Grace Hospital [1-3]	Detroit	R. P. Reynolds	8,116	44	4	16	[illegible]
Harper Hospital [1-3-168]	Detroit	E. A. Osius	3,499	37	12	21	[illegible]
Henry Ford Hospital [1-3]	Detroit	L. S. Fallis	7,367	195	22	64	[illegible]
Receiving Hospital [1-3]	Detroit	C. G. Johnston	4,816	156	10	42	[illegible]
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	L. E. Lee, Jr.	3,321	99	4	14	[illegible]
Hurley Hospital [1-3]	Flint, Mich.	G. J. Curry	5,144	68	2	6	[illegible]
Blodgett Memorial Hospital	Grand Rapids, Mich.	W. R. Torgerson	1,849	31	1	4	[illegible]
Butterworth Hospital [1-3]	Grand Rapids, Mich.	W. McDougal	3,059	39	2	7	[illegible]

Numerical and other references will be found on pages 556 through 559.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
hland Park General Hospital [1]	Highland Park, Mich.	J. A. Witter	1,610	9	2	8	308
neapolis General Hospital [1-3]	Minneapolis	C. R. Hitchcock	1,093	77	6	14	209
versity of Minnesota Hospitals [1-3-205]	Minneapolis	O. H. Wangensteen	1,854	98	9	29	185
erans Admin. Hospital [1-3-212]	Minneapolis	D. J. Ferguson	1,753	62	9	12	...
yo Foundation and Clinic [1-3]	Rochester, Minn.	J. M. Waugh	11,287	143	36	128	175
ker Hospital [1-3]	St. Paul, Minn.	J. M. Culligan	2,082	81	2	8	185
versity Hospital [1]	Jackson, Miss.	J. D. Hardy	997	31	6	20	250
versity of Missouri Medical Center	Columbia, Mo.	H. E. Stephenson, Jr.	472	17	8	20	...
nsas City General Hospital No. 1	Kansas City, Mo.	R. R. Coffey	997	30	2	8	200
nes Hospital [1-3]	St. Louis	C. A. Moyer	3,076	76	27	30	50
mer G. Phillips Hospital [1-3]	St. Louis	C. A. Moyer	3,166	53	8	22	201
ish Hospital [1-3]	St. Louis	M. D. Pareira	3,655	26	3	10	100
souri Pacific Hospital [3]	St. Louis	R. A. Weir	1,923	32	6	12	200
Louis City Hospital [1-3]	St. Louis	C. A. McAfee-L. V. Mulligan	2,774	85	4	15	92
Luke's Hospital [1-3]	St. Louis	C. E. Lischer	3,048	39	2	7	250
Mary's Group of Hospitals [1-3]	St. Louis	C. R. Hanlon	3,094	58	4	13	100
erans Admin. Hospital [1-3]	St. Louis	.....	.....	..	..	..	...
t. Louis University School of Medicine Service		W. J. Burdette	1,328	49	2	8	...
ashington University School of Medicine Service		F. B. Hershey	1,136	43	2	8	...
ighton Memorial-St. Joseph's Hospital	Omaha	H. H. McCarthy	5,463	46	3	12	210
versity of Nebraska Hospital [1-3-222]	Omaha	M. M. Musselman	678	31	2	8	175
erans Admin. Hospital [1-3]	Omaha	W. P. Kleitsch	1,694	43	2	8	...
tmouth Medical School Affiliated Hospitals		.....	3,808	43	5	18	218
ary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. E. Weismann	.....	..	..	..	...
eterans Admin. Hospital [1-3]	White River Jct., Vt.	W. B. Crandall	.....	..	..	..	...
erans Admin. Hospital [1-3-229]	Albuquerque, N. Mex.	W. A. Childs	1,591	26	4	14	...
wark Beth Israel Hospital [1-3]	Newark, N. J.	H. Reich	6,373	41	1	4	100
any Hospital [1-3]	Albany, N. Y.	C. Eckert	3,396	81	4	10	160
erans Admin. Hospital [1-3]	Albany, N. Y.	J. A. Nelson	2,003	41	4	14	...
oklyn Hospital [1-3]	Brooklyn, N. Y.	K. H. MacGregor	4,039	31	4	10	175
ey Island Hospital	Brooklyn, N. Y.	J. E. Hammett	2,441	51	2	8	105
ish Hospital [1-3]	Brooklyn, N. Y.	L. Berger	3,165	28	4	10	100
gs County Hospital							
ivision I [1-3]	Brooklyn, N. Y.	J. F. Raycroft	4,093	78	5	14	104
ivision II [1-3]	Brooklyn, N. Y.	C. Dennis	3,827	86	5	14	104
ng Island College Hospital [1-3]	Brooklyn, N. Y.	E. J. Browder	2,400	22	2	5	156
imonides Hospital [1-3]	Brooklyn, N. Y.	A. Hurwitz	2,703	29	5	9	75
thodist Hospital [1-3-235]	Brooklyn, N. Y.	A. J. Vosseler	2,052	19	2	5	175
terans Admin. Hospital [1-3]	Brooklyn, N. Y.	H. H. Le Veen	1,410	31	6	17	...
ckoff Heights Hospital [1-3-234]	Brooklyn, N. Y.	P. Zoller	2,686	30	3	12	100
ed Hospitals of the Sisters of Charity [1-3]	Buffalo	F. Zaepfel	10,866	101	2	8	235
ffalo General Hospital [1-3-243]	Buffalo	J. R. Paine	3,346	70	3	14	175
ward J. Meyer Memorial Hospital [1-3]	Buffalo	J. D. Stewart	1,843	60	3	12	248
lard Fillmore Hospital [1-3]	Buffalo	H. N. Kenwell	4,614	56	5	11	285
terans Admin. Hospital [1-3-250]	Buffalo	W. M. Chardack	1,731	56	4	14	...
ry Imogene Bassett Hospital [1-3-256]	Cooperstown, N. Y.	J. H. Powers	1,224	23	2	5	150
adowbrook Hospital [1-3]	Hempstead, N. Y.	J. N. Shell	1,705	69	3	12	225
eens Hospital Center [1-3]	Jamaica, N. Y.	L. J. Morse	3,353	134	3	10	71
ssau Hospital [1-3]	Mineola, N. Y.	W. C. Freese	2,734	33	2	8	318
ng Island Jewish Hospital [1-3]	New Hyde Park, N. Y.	P. E. Lear	3,248	43	1	4	75
llevue Hospital Center							
Div. I—Columbia University [1-3-258]	New York City	K. M. Lewis, Sr.	1,679	16	6	13	105
Div. II—Cornell University [1-3-255]	New York City	C. W. Holman	1,601	27	4	14	105
Div. III—New York University College of Medicine [264]	New York City	J. H. Mulholland	2,710	28	8	18	105
Div. IV—New York University Post-Graduate Medical School [268]	New York City	J. W. Hinton	2,054	31	13	54	105
th Israel Hospital [1-3-271]	New York City	L. Ginzburg	2,664	21	1	4	140
onx Hospital [1-3]	New York City	R. Friedlander	2,763	14	4	10	60
onx Municipal Hospital Center [1-3]	New York City	C. B. Ripstein	901	55	6	20	105
arlem Hospital [1-3]	New York City	A. D. Maynard	1,105	15	4	12	71
ickerbocker Hospital [1-3]	New York City	P. D. Allen	2,413	22	3	7	125
nox Hill Hospital [1-3]	New York City	H. C. Maier	3,279	42	2	8	150
ncoln Hospital [1-3]	New York City	F. H. Amendola	2,901	16	4	10	105
ontefiore Hospital [1-3]	New York City	E. S. Hurwitt	3,579	69	4	11	187
ount Sinai Hospital [1-3]	New York City	I. D. Baronofsky	4,431	80	10	17	75
w York Hospital [1-3]	New York City	F. Glenn	4,118	89	7	30	164
w York Medical College-Metropolitan Medical Center							
Flower and Fifth Avenue Hospitals	New York City	J. M. Winfield	4,500	35	6	7	...
Metropolitan Hospital [1-3]	New York City	J. M. Winfield	1,544	37	2	8	104
w York Polyclinic Medical School and Hospital [1-3]	New York City	R. E. Brenenan	3,678	32	3	12	125
esbyterian Hospital [1]	New York City	G. H. Humphreys	4,604	41	8	29	250
osevelt Hospital [1-3]	New York City	.....	3,746	58	6	18	133
Clare's Hospital [1-3]	New York City	J. L. Madden	3,835	44	2	8	200
Luke's Hospital	New York City	H. A. Zintel	3,798	82	6	15	100
Vincent's Hospital [1-3]	New York City	L. M. Rousselot	6,822	87	6	17	125
eterans Admin. Hospital [1-3-279]	New York City (Bronx)	P. Cooper	1,709	42	4	13	...
eterans Admin. Hospital [1-3]	New York City (Manhattan)	W. F. MacFee	2,026	66	6	24	...
nesee Hospital [1-3]	Rochester, N. Y.	E. Douglas	3,644	53	2	7	240
ochester General Hospital [1-3]	Rochester, N. Y.	G. R. Bodon	3,697	44	3	10	125
Mary's Hospital [1-3]	Rochester, N. Y.	N. J. Pfaff	5,296	39	1	2	200
rong Memorial-Rochester Municipal Hospitals [1-3-296]	Rochester, N. Y.	W. J. M. Scott	3,172	134	8	25	117
ate University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	C. B. Mueller	10,665	172	10	24	233
Veterans Admin. Hospital [1-3]	Syracuse, N. Y.	L. S. Rogers	1,352	42	3	7	...
asslands Hospital [1-3]	Valhalla, N. Y.	G. C. Adie	707	44	1	5	175
orth Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	N. A. Womack	1,010	29	7	20	156
ke University Hospital [1-3-300]	Durham, N. C.	D Hart	1,980	16	12	27	127
orth Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	H. H. Bradshaw	2,191	28	5	18	125
kron City Hospital [1-3-301]	Akron, Ohio	S. A. Schlueter	4,180	59	4	12	250
kron General Hospital [1-301]	Akron, Ohio	R. T. Allison	5,720	98	4	14	250
t. Thomas Hospital [1-3]	Akron, Ohio	A. H. Kyriakides	3,383	36	3	8	250
niversity of Cincinnati College of Medicine Hospital Group							
Cincinnati General Hospital	Cincinnati	W. A. Altemeier	2,525	86	8	30	75
t. Mary's Hospital [1-3]	Cincinnati	J. D. Mansfield	1,301	11	1	4	250
ity Hospital [1-3]	Cleveland	F. A. Simeone	1,667	54	9	21	162.50
eveland Clinic Hospital [1-3]	Cleveland	G. Crile, Jr.	1,149	19	10	21	175
uron Road Hospital [1-3]	Cleveland	L. A. Steinhilber	4,614	39	2	7	210
ount Sinai Hospital [1-3]	Cleveland	S. O. Freedlander	2,516	33	4	10	215
t. Alexis Hospital [1-3]	Cleveland	C. R. Lulenski	6,080	76	4	11	250
t. Luke's Hospital [1-3]	Cleveland	F. S. Cross	4,079	43	2	8	140
t. Vincent Charity Hospital [1-3]	Cleveland	F. Vecchio	6,711	88	4	12	210
niversity Hospitals [1-3]	Cleveland	W. D. Holden	4,773	60	9	22	125
eterans Admin. Hospital [1-3]	Cleveland	C. L. Cogbill	1,891	39	8	16	...

Numerical and other references will be found on pages 556 through 559.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	[illegible]
Ohio State University Hospitals							
University Hospital [1-3-312]	Columbus, Ohio	R. M. Zollinger	3,527	102	6	18	[illegible]
White Cross Hospital [1-3-316]	Columbus, Ohio	R. Patton	2,971	25	2	5	[illegible]
Veterans Admin. Hospital [1-3]	Dayton, Ohio	C. C. Burton	2,098	73	6	24	[illegible]
St. Elizabeth Hospital [1-3]	Youngstown, Ohio	J. K. Herald	1,886	14	4	9	[illegible]
Youngstown Hospital [1-3]	Youngstown, Ohio	W. K. Allsop	10,720	79	2	6	[illegible]
University of Oklahoma Hospitals [1-3-322]	Oklahoma City	J. A. Schilling	1,281	21	4	16	[illegible]
Veterans Admin. Hospital [1-3-324]	Oklahoma City	F. A. Quenzer	1,733	68	4	11	[illegible]
St. Vincent's Hospital [1-3-320]	Portland, Ore.	A. M. Boyden	6,747	45	2	8	[illegible]
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	W. K. Livingston	1,483	65	2	8	[illegible]
Veterans Admin. Hospital [1-3]	Portland, Ore.	R. A. Wise	1,501	21	5	15	[illegible]
Abington Memorial Hospital [1-3]	Abington, Pa.	C. M. Smyth	2,375	40	1	4	[illegible]
Allentown Hospital [1-3]	Allentown, Pa.	R. L. Schaeffer	2,872	54	1	3	[illegible]
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	F. R. Robbins	3,726	50	2	5	[illegible]
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	H. L. Foss	1,991	33	1	4	[illegible]
Hamot Hospital [1-3]	Erie, Pa.	B. Goldman	5,792	52	1	4	[illegible]
Harrisburg Hospital	Harrisburg, Pa.	C. E. Moore	5,260	34	2	5	[illegible]
Germantown Dispensary and Hospital [1-3-333]	Philadelphia	S. D. Weeder	2,443	51	1	4	[illegible]
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. R. Hawthorne	1,308	17	4	8	[illegible]
Hahnemann Medical College and Hospital [1-3]	Philadelphia	W. L. Martin	2,337	102	3	12	[illegible]
Hospital of the University of Pennsylvania [1-3]	Philadelphia	I. S. Ravdin	4,824	117	10	29	[illegible]
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	L. K. Ferguson	1,719	16	2	5	[illegible]
Jefferson Medical College Hospital [1-3]	Philadelphia	J. H. Gibbon, Jr.	3,115	48	8	19	[illegible]
Lankenau Hospital [1-3]	Philadelphia	J. M. Deaver-G. C. Engel	2,216	17	2	8	[illegible]
Misericordia Hospital [1]	Philadelphia	W. D. O'Sullivan	2,161	59	1	4	[illegible]
Pennsylvania Hospital [1-3]	Philadelphia	J. W. Raker	1,848	67	12	12	[illegible]
Temple University Hospital [1-3-331]	Philadelphia	W. E. Burnett	2,227	54	3	12	...
Veterans Admin. Hospital [1-3]	Philadelphia	W. G. Nichols, Jr.	3,436	66	3	12	...
Allegheny General Hospital [1]	Pittsburgh	J. A. Heberling	1,744	14	1	4	[illegible]
Mercy Hospital [1-3]	Pittsburgh	H. G. Kuehner	3,532	29	4	16	[illegible]
Health Center Hospitals of the University of Pittsburgh School of Medicine	Pittsburgh		3,570	51	4	12	[illegible]
Presbyterian Hospital		S. P. Harbison	.....	..	..	..	...
Veterans Admin. Hospital [1-3]	Pittsburgh	F. C. Jackson	1,784	60	7	19	...
Western Pennsylvania Hospital [1-3]	Pittsburgh	G. V. Foster	9,591	92	3	11	[illegible]
Robert Packer Hospital [1-3]	Sayre, Pa.	D. Guthrie	3,755	38	2	6	[illegible]
York Hospital	York, Pa.	F. M. Weaver	6,233	50	1	4	[illegible]
Rhode Island Hospital [1-3]	Providence, R. I.	J. M. Beardsley	4,748	68	2	8	[illegible]
Veterans Admin. Hospital [1-3-313]	Providence, R. I.	H. W. Harrower	2,332	31	4	12	...
Medical College of South Carolina Teaching Hospitals [1]	Charleston, S. C.	F. E. Kredel	2,435	86	4	14	[illegible]
Greenville General Hospital [1-3]	Greenville, S. C.	R. Thomason	5,797	75	1	4	[illegible]
Baptist Memorial Hospital [1-3-344]	Memphis, Tenn.	R. M. Miles	9,510	59	2	7	[illegible]
City of Memphis Hospitals [1-3]	Memphis, Tenn.	H. Wilson	2,221	42	3	13	[illegible]
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	R. F. Bowers	3,264	49	11	23	[illegible]
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	M. Walker	1,797	30	3	13	[illegible]
Nashville General Hospital [1-3]	Nashville, Tenn.	O. F. Noel	1,584	27	3	9	[illegible]
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	H. W. Scott, Jr.	2,921	31	4	14	[illegible]
Veterans Admin. Hospital [1]	Nashville, Tenn.	R. I. Carlson	2,823	44	3	19	[illegible]
Baylor University Hospital [1-3]	Dallas, Texas	J. W. Duckett	3,496	24	3	9	[illegible]
Parkland Memorial Hospital [1-3]	Dallas, Texas	B. Wilson	2,330	65	9	25	[illegible]
Veterans Admin. Hospital [1-3-350]	Dallas, Texas	J. P. North	1,360	22	5	14	[illegible]
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	R. M. Moore	1,445	16	6	18	[illegible]
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital [1-3]	Houston, Texas	M. E. DeBakey	1,903	49	6	20	[illegible]
Methodist Hospital [1-3]	Houston, Texas	L. L. D. Tuttle	2,045	49	1	4	[illegible]
Veterans Admin. Hospital [1-3]	Houston, Texas	G. L. Jordan, Jr.	1,213	63	6	15	[illegible]
Hermann Hospital [1-3]	Houston, Texas	G. W. Waldron	5,549	53	2	8	[illegible]
Veterans Admin. Hospital [1-3]	McKinney, Texas	J. P. North	1,184	18	..	3	[illegible]
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	V. L. Rees	5,565	37	2	8	[illegible]
Salt Lake County General Hospital [1]	Salt Lake City	R. C. Richards	1,068	16	3	12	[illegible]
Veterans Admin. Hospital [3-368]	Salt Lake City	J. A. Gubler	376	14	2	9	...
University of Vermont Affiliated Hospitals							
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	A. A. Gladstone	959	17	1	3	[illegible]
Mary Fletcher Hospital [1-3]	Burlington, Vt.	A. G. Mackay	2,219	37	2	8	[illegible]
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. H. Muller, Jr.	2,116	33	7	17	[illegible]
Chesapeake and Ohio Hospital [1-3]	Clifton Forge, Va.	J. M. Emmett	3,030	24	4	10	[illegible]
Norfolk General Hospital [1-3]	Norfolk, Va.	R. L. Payne, Jr.	2,855	29	4	8	[illegible]
Medical College of Virginia—Hospital Division [1-3-373]	Richmond, Va.	D. M. Hume	4,901	76	7	23	...
Veterans Admin. Hospital [1-8]	Richmond, Va.	R. F. MacDonald	2,067	31	2	8	[illegible]
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	H. N. Harkins	1,750	93	4	12	[illegible]
Veterans Admin. Hospital [1-3]	Seattle	J. W. Bell	1,311	66	4	13	[illegible]
Virginia Mason Hospital [1-3]	Seattle	J. W. Baker	4,833	60	3	11	[illegible]
University Hospitals [1-3]	Madison, Wis.	E. R. Schmidt	2,434	91	4	16	[illegible]
Milwaukee County Hospital [1-3]	Milwaukee	J. M. King	2,564	93	8	20	[illegible]
Milwaukee Hospital [1-3-375-376]	Milwaukee	I. Schulz	4,296	37	1	6	[illegible]
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	M. B. Smith	2,894	86	3	15	[illegible]
San Juan City Hospital [1-3]	San Juan, P. R.	J. N. Benitez	2,371	37	2	8	[illegible]

Residency programs in the following hospitals have been approved by the Council, the American Board of Surgery and the American College of Surgeons, through the Conference Committee on Graduate Training in Surgery, for THREE years of training, designed to qualify the trainee for examination by the American Board of Surgery as a Group II candidate.

Hospitals, 202; Assistant Residencies and Residencies, 1219

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	[illegible]
UNITED STATES ARMY							
William Beaumont Army Hospital	El Paso, Texas	R. T. Gants	2,192	10	2	6	...
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Great Lakes, Ill.	H. H. Eighmy	2,025	3	1	3	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital [1-3]	New Orleans	J. L. Elliott	3,412	15	1	3	...
U. S. Public Health Service Hospital [1-3]	Baltimore	H. D. Fishburn	2,929	55	2	6	...
U. S. Public Health Service Hospital [1]	Boston	F. W. Love	3,782	12	1	3	...
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y.	J. D. Lane	2,556	32	4	10	...
U. S. Public Health Service Hospital [1-3]	Seattle	J. D. Lane, Jr.	2,387	14	1	4	...
NONFEDERAL AND VETERANS ADMINISTRATION							
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	C. N. Carraway-B. M. Carraway	1,002	10	2	6	[illegible]
Mobile County Hospital [1-3]	Mobile, Ala.	E. B. Frazier	2,219	51	2	4	[illegible]
Veterans Admin. Hospital [1-3-51]	Tuskegee, Ala.	A. G. Yancey	1,053	23	3	8	...

Numerical and other references will be found on pages 556 through 559.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
County General Hospital [1]	Bakersfield, Calif.	C. P. Marvin	1,309	70	4	9	325
ck Memorial Hospital [1-3]	Berkeley, Calif.	L. E. Brown	2,769	25	1	3	175
lale Sanitarium and Hospital [1]	Glendale, Calif.	J. Janzen	3,916	28	1	3	...
ornia Hospital [1-3-60]	Los Angeles	W. H. Olds	2,606	21	7	19	150
ital of the Good Samaritan [3]	Los Angeles	K. W. Blake	3,140	12	2	6	225
e of Angels Hospital [1-3]	Los Angeles	J. F. Regan	9,783	78	1	4	200
incent's Hospital [3]	Los Angeles	L. C. Bennett	4,391	16	1	3	250
y Hospital [1-3]	San Diego, Calif.	J. J. O'Hara	2,959	24	1	3	200
oseph's Hospital [1-3]	San Francisco	T. P. Schomaker	2,427	10	1	3	300
uke's Hospital [1-3]	San Francisco	O. Pflueger	2,895	23	1	5	200
lary's Hospital [1-3]	San Francisco	T. J. Whalen	2,148	7	3	9	150
hern Pacific General Hospital [1-3]	San Francisco	V. M. Strange	2,160	15	4	9	175
y Hospital [1-3]	Denver	B. E. Grossman	5,007	28	2	4	250
byterian Hospital [1-3]	Denver	K. C. Sawyer	1,863	13	2	4	225
uke's Hospital [1-44]	Denver	G. Wollgast	7,199	55	2	6	225
geport Hospital [1-3]	Bridgeport, Conn.	I. L. Harshbarger	4,557	40	1	4	240
Francis Hospital [1-3]	Hartford, Conn.	L. A. St. John	4,194	54	2	6	125
pital of St. Raphael [1]	New Haven, Conn.	O. Pelliccia	2,114	39	4	11	150
Mary's Hospital	Waterbury, Conn.	F. C. LaBrecque	2,465	35	2	5	225
tors Hospital [1-3]	Washington, D. C.	C. S. White	4,534	35	1	3	150
nt Sinai Hospital of Greater Miami [1-3]	Miami Beach, Fla.	R. M. Fleming	4,613	17	2	4	250
npa General Hospital [1-3]	Tampa, Fla.	W. C. Myers, Jr.	4,294	69	1	3	250
wford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	C. E. Holloway	4,938	29	6	10	285
rgia Baptist Hospital [1-3]	Atlanta, Ga.	W. S. Dorough	8,933	16	2	7	305
Joseph's Infirmary [1-3]	Atlanta, Ga.	D. Shepard	4,355	36	3	7	270
erican Hospital [1-3]	Chicago	M. Thorek-P. Thorek	2,236	34	5	7	65
ustana Hospital [1-3]	Chicago	W. H. Browne	3,431	42	3	6	150
nt Hospital [1]	Chicago	C. K. Solander	1,176	12	1	2	225
ois Central Hospital [1-3]	Chicago	C. C. Guy	3,032	39	1	3	256
ois Masonic Hospital [1-3]	Chicago	P. Shambaugh	1,588	21	4	8	115
ry Hospital [1-3-117]	Chicago	H. A. Oberhelman	2,220	66	4	10	200
vident Hospital [1-3]	Chicago	C. W. Phillips	1,901	21	1	3	200
Joseph Hospital [1-3]	Chicago	F. B. McCarty	2,614	32	1	3	300
Mary of Nazareth Hospital [1-3]	Chicago	E. H. Warszewski	2,978	23	3	6	150
erans Admin. West Side Hospital [1-3-152]	Chicago	M. I. Gibbel	1,908	52	6	17	...
anston Hospital [1-3]	Evanston, Ill	J. M. Dorsey	2,202	35	1	3	225
Francis Hospital [1-3]	Peoria, Ill.	C. D. Branch	4,501	32	1	3	225
ile Hospital [1-3-124]	Bluffton, Ind.	H. D. Caylor	672	7	1	3	300
thodist Hospital [1]	Indianapolis	J. E. Owen	6,740	90	2	6	278
Vincent's Hospital [1-3]	Indianapolis	W. D. Gatch	1,985	17	1	3	275
Margaret's Hospital	Kansas City, Kan.	M. V. Laing	5,534	79	1	3	300
Francis Hospital [1-3]	Wichita, Kan.	J. W. Graves	2,716	29	2	6	275
Joseph Hospital [1-3]	Lexington, Ky.	F. M. Massie	1,632	36	3	7	210
sner Foundation Hospital [1-150]	New Orleans	A. Ochsner	1,261	19	7	21	225
uthern Baptist Hospital [1-3]	New Orleans	W. Becker	5,921	..	1	4	225
uro Infirmary [1]	New Orleans	L. H. Strug	23,769	40	2	6	125
theran Hospital [1-3]	Baltimore	W. E. Gilmore	2,493	15	2	6	220
ovident Hospital and Free Dispensary [3]	Baltimore	R. L. Jackson	1,073	6	3	6	200
Joseph's Hospital [3]	Baltimore	O. C. Brantigan	4,146	38	2	6	225
uth Baltimore General Hospital [1-3]	Baltimore	G. H. Yeager	2,732	17	4	8	200
nce George's General Hospital [1-3]	Cheverly, Md.	S. Schwartzbach	5,114	43	2	6	200
verly Hospital [1-3]	Beverly, Mass.	R. E. Alt	2,666	41	2	5	150
unt Auburn Hospital [1-3]	Cambridge, Mass.	J. Tartakoff	3,552	46	1	3	125
alden Hospital [1-3]	Malden, Mass.	W. E. Garrey	2,758	23	3	6	200
wton-Wellesley Hospital [1-3-166]	Newton-Lower Falls, Mass.	R. I. Smith	3,637	30	1	3	200
incy City Hospital [1-3]	Quincy, Mass.	J. M. McGowan	2,402	32	1	4	163
lla Y. Post Montgomery Hospital [1-3]	Battle Creek, Mich.	S. B. Winslow	2,232	20	1	3	275
exander Blain Hospital [1-3]	Detroit	A. W. Blain, III	1,447	7	2	5	325
ount Carmel Mercy Hospital [1-3]	Detroit	T. A. Boutrous	10,283	74	4	13	275
ovidence Hospital [1]	Detroit	W. G. Quigley	6,854	36	1	3	275
. John Hospital [1-3]	Detroit	C. J. France	843	..	1	3	275
. Joseph Mercy Hospital [1]	Detroit	L. B. Saraf	2,091	9	1	3	310
nai Hospital [1-3]	Detroit	M. P. Meyers	3,467	35	2	6	275
cLaren General Hospital [1]	Flint, Mich.	E. P. Vary	6,492	33	2	5	325
. Mary's Hospital [1-3]	Grand Rapids, Mich.	F. Gillett	4,791	26	2	4	250
onson Methodist Hospital [1]	Kalamazoo, Mich.	R. A. Scholten	2,853	48	1	4	260
ontiac General Hospital [1-3]	Pontiac, Mich.	R. W. Bullard, Jr.	4,737	48	1	3	325
. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	C. G. Darling	1,987	17	2	6	325
aginaw General Hospital [1-3]	Saginaw, Mich.	H. M. Bishop	3,315	52	1	3	345
ount Sinai Hospital [1-3]	Minneapolis	A. Kremen	1,472	18	1	3	200
t. Barnabas Hospital [1-3]	Minneapolis	W. G. Schaefer-M. J. Stewart	1,881	10	2	2	235
ayo Foundation [1-3]	Rochester, Minn.	J. M. Waugh	11,287	143	36	128	175
harles T. Miller Hospital [1-3]	St. Paul, Minn.	B. G. Lannin	2,481	42	1	3	225
lercy Hospital-Street Memorial [1]	Vicksburg, Miss.	G. H. Martin	2,277	21	1	3	225
cksburg Hospital [3]	Vicksburg, Miss.	W. H. Parsons	3,234	22	2	2	50
t. Louis County Hospital [1-3]	Clayton, Mo	....	411	33	2	6	225
ansas City General Hospital No. 2 [1-3]	Kansas City, Mo.	R. E. Allen	823	19	2	6	200
t. Joseph Hospital	Kansas City, Mo.	V. T. Williams-J. A. Growdon	4,778	38	1	3	250
t. Luke's Hospital [1-3-216]	Kansas City, Mo.	I. S. Brown	4,938	45	2	5	225
t. Mary's Hospital [1-3]	Kansas City, Mo.	J. H. O'Neil	5,531	31	1	3	275
issouri Baptist Hospital [1-3-218]	St. Louis	A. R. Dalton	2,210	24	2	8	175
t. John's Hospital [1-3]	St. Louis	G. T. Gatney	3,017	49	3	6	200
eterans Admin. Hospital [1-3-219]	Lincoln, Neb.	B. R. Walske	1,918	24	2	6	...
tlantic City Hospital [1-3]	Atlantic City, N. J.	J. H. Mason, III	1,491	47	1	3	200
ooper Hospital [1-3]	Camden, N. J.	E. R. Ristine	2,462	37	1	3	200
West Jersey Hospital [1-3]	Camden, N. J.	K. Athey	5,431	19	1	3	225
eterans Admin. Hospital [1-3]	East Orange, N. J.	A. Levy	827	103	8	14	...
Jersey City Medical Center [1-3]	Jersey City, N. J.	E. J. Halligan	5,835	91	8	27	108
Burlington County Hospital [1-3]	Mount Holly, N. J.	T. J. Summey	1,749	42	1	3	100
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	C. MacArthur	1,248	11	3	9	162
Saint Barnabas Medical Center [1]	Newark, N. J.	H. A. Schulte	1,715	23	..	3	150
Orange Memorial Hospital [1-3]	Orange, N. J.	C. H. Evans	4,019	34	1	3	150
St. Francis Hospital [1-3]	Trenton, N. J.	L. S. Sica	6,414	111	2	5	210
St. Peter's Hospital [1-3]	Albany, N. Y.	....	.....	...	..	..	...
Beth-El Hospital [1-3]	Brooklyn, N. Y.	H. Neuhof	2,748	21	3	6	125
Cumberland Hospital [1-3-234]	Brooklyn, N. Y.	J. J. Gainey	2,148	14	4	8	104
Greenpoint Hospital [1-3]	Brooklyn, N. Y.	S. Schussheim	2,037	16	2	6	105
Lutheran Medical Center [1-3]	Brooklyn, N. Y.	R. P. San Filippo	2,309	26	1	3	135
St. Catherine's Hospital [1-3]	Brooklyn, N. Y.	J. A. McCabe	3,509	15	1	4	125
St. John's Episcopal Hospital [1-3]	Brooklyn, N. Y.	C. Dennis	2,462	20	1	3	175
St. Mary's Hospital [1-3]	Brooklyn, N. Y.	J. Rizzo	1,542	20	1	3	200
Deaconess Hospital [1-3]	Buffalo	E. T. McGroder	4,512	27	2	6	300
Clifton Springs Sanitarium and Clinic [1-3]	Clifton Springs, N. Y.	R. M. Price	1,571	13	1	3	150
Elmhurst General Hospital [1-3-17-295]	Elmhurst, N. Y.	W. M. Weeden	2,218	40	2	6	104

Numerical and other references will be found on pages 556 through 559.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Salaries (Monthly)
Good Samaritan Hospital [3]	Lexington, Ky.	A. E. Grimes	2,091	18	1	1	[illegible]
Hotel Dieu [1]	New Orleans	M. Salatich	2,351	29	2	4	[illegible]
Ochsner Foundation Hospital [1]	New Orleans	A. Ochsner	1,261	19	7	7	[illegible]
Central Maine General Hospital [1]	Lewiston, Maine	W. V. Cox	3,329	40	1	1	[illegible]
Bon Secours Hospital [3]	Baltimore	S. G. Sullivan	1,214	7	1	2	[illegible]
New England Hospital [1-3]	Boston	A. Brown	1,620	5	2	2	[illegible]
Burbank Hospital [1]	Fitchburg, Mass.	F. P. Ross	3,247	46	2	3	[illegible]
Evangelical Deaconess Hospital [1-3]	Detroit	T. H. Hunt	2,056	14	1	1	[illegible]
Jennings Memorial Hospital [1-3]	Detroit	J. B. Hartzell	530	8	2	2	[illegible]
Woman's Hospital [1-3]	Detroit	J. R. Brown	3,616	20	1	3	[illegible]
Bon Secours Hospital	Grosse Pointe, Mich.	J. Blain	1,523	9	1	2	[illegible]
Borgess Hospital [1]	Kalamazoo, Mich.	J. Hammer	3,520	114	1	1	[illegible]
Edward W. Sparrow Hospital	Lansing, Mich.	S. H. Rutledge	7,168	25	1	1	[illegible]
Swedish Hospital [1-3]	Minneapolis	V. J. P. Lundquist	8,736	44	3	6	[illegible]
Menorah Medical Center [1-3]	Kansas City, Mo.	P. H. Halperin	4,426	43	3	6	[illegible]
Missouri Methodist Hospital [1]	St. Joseph, Mo.	S. C. Benson	4,672	34	3	3	[illegible]
St. Anthony's Hospital [1-3]	St. Louis	A. Repetto	3,503	19	1	1	[illegible]
St. Elizabeth Hospital [1]	Lincoln, Neb.	R. F. Mueller	4,065	25	3	3	[illegible]
Hackensack Hospital [1-3]	Hackensack, N. J.	A. I. Mader, Jr.	4,026	32	1	3	[illegible]
Monmouth Memorial Hospital [1-3]	Long Branch, N. J.	H. Kazmann	2,882	48	1	2	[illegible]
Mountainside Hospital [1-3]	Montclair, N. J.	H. Wesson	5,219	...	2	2	[illegible]
Morristown Memorial Hospital [1-3]	Morristown, N. J.	G. H. Laudig	4,414	35	1	1	[illegible]
Fitkin Memorial Hospital [1-3]	Neptune N. J.	M. Q. Hancock	2,389	16	2	2	[illegible]
Presbyterian Hospital [1-3]	Newark, N. J.	H. Huntman	4,663	45	3	3	[illegible]
Columbus Hospital [3]	New York City	V. Carabba	1,688	24	1	2	[illegible]
Hospital for Joint Diseases [1-3]	New York City	P. Klingenstein	896	10	4	4	[illegible]
Jewish Memorial Hospital [1-3]	New York City	B. Sherwin	1,680	16	1	1	[illegible]
Lebanon Hospital [1-3]	New York City	B. Sherwin-C. B. Ripstein	3,199	12	1	1	[illegible]
Misericordia Hospital	New York City	M. J. Healy	2,063	26	1	2	[illegible]
Mother Cabrini Memorial Hospital [1-3]	New York City	J. P. Alvich	1,404	4	1	3	[illegible]
New York Infirmary [1-3]	New York City	L. Loseke	1,217	4	1	2	[illegible]
United Hospital [1-3]	Port Chester, N. Y.	G. O. Tremble	2,617	...	2	2	[illegible]
St. Agnes Hospital [1]	Raleigh, N. C.	G. W. Paschal	632	...	1	1	[illegible]
Kate Bitting Reynolds Memorial Hospital [1-3]	Winston-Salem, N. C.	J. M. Walker, Jr.	2,165	16	1	3	[illegible]
Bismarck Hospital [3]	Bismarck, N. Dak.	R. H. Waldschmidt	722	2	3	3	[illegible]
St. Luke's Hospital [3]	Fargo, N. Dak.	V. G. Borland	1,046	8	2	2	[illegible]
Deaconess Hospital [1-3]	Cincinnati	R. W. Good-J. Payne	3,174	10	3	3	[illegible]
Fairview Park Hospital [1-3]	Cleveland	R. J. McNamee	1,764	41	2	7	[illegible]
St. Elizabeth Hospital [1-3]	Dayton, Ohio	T. P. Rab	9,254	221	1	1	[illegible]
Mercy Hospital [1-3]	Hamilton, Ohio	W. F. Hume	2,695	24	6	6	[illegible]
Lima Memorial Hospital [1-3]	Lima, Ohio	R. R. Snowball	5,199	29	1	3	[illegible]
Mansfield General Hospital [1-4]	Mansfield, Ohio	M. S. Reed	3,368	14	4	4	[illegible]
Flower Hospital [1]	Toledo, Ohio	W. H. Meflley	3,770	24	1	1	[illegible]
Wesley Hospital [1]	Oklahoma City	J. H. Robinson	1,384	11	2	2	[illegible]
Emanuel Hospital [1-3]	Portland, Ore.	J. W. Bassett	8,487	44	1	2	[illegible]
Good Samaritan Hospital [1-3]	Portland, Ore.	J. Rauf	9,411	...	3	3	[illegible]
Providence Hospital [1-4]	Portland, Ore.	J. C. Adams	6,703	79	1	4	[illegible]
Bradford Hospital [1-3]	Bradford, Pa.	S. A. McCutcheon	888	5	..	2	[illegible]
Hazleton State Hospital [1-3]	Hazleton, Pa.	J. P. H. Kettrick	2,627	14	3	4	[illegible]
Frankford Hospital [1-3]	Philadelphia	O. P. Large	1,954	15	1	3	[illegible]
St. Joseph's Hospital [1-3]	Philadelphia	J. A. Lehman	3,044	15	2	2	[illegible]
St. Mary's Hospital [1-3]	Philadelphia	P. McCarthy	989	13	2	2	[illegible]
St. Margaret Memorial Hospital [1-3]	Pittsburgh	J. R. Watson	1,297	12	1	1	[illegible]
Mercy Hospital [1-3]	Wilkes-Barre, Pa.	M. Sindaco	2,406	7	1	1	[illegible]
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.	P. J. Morgan	2,732	15	2	2	[illegible]
Columbia Hospital [1-3]	Wilkinsburg, Pa.	W. B. Hetzel	3,915	29	2	2	[illegible]
Memorial Hospital [1-3]	Chattanooga, Tenn.	F. B. Graham, III	1,599	6	4	4	[illegible]
Newell Hospital [3]	Chattanooga, Tenn.	E. T. Newell, Jr.	2,076	27	3	3	[illegible]
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	C. L. Chumley	3,329	22	2	2	[illegible]
Harris Hospital [1-3]	Fort Worth, Texas	A. F. Kauffmann	6,487	31	2	4	[illegible]
Southern Pacific Hospital [3]	Houston, Texas	J. R. Gandy	482	5	2	2	[illegible]
Baptist Memorial Hospital [1-3]	San Antonio, Texas	R. F. Gossett	5,441	25	1	1	[illegible]
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	J. A. McMurrin	3,551	17	3	3	[illegible]
St. Mark's Hospital [1]	Salt Lake City	G. L. Wright	.....	...	1	1	[illegible]
St. Elizabeth's Hospital	Richmond, Va.	G. W. Horsley	949	2	1	2	[illegible]
Lewis-Gale Hospital [1-3]	Roanoke, Va.	W. L. Sibley	2,879	12	2	2	[illegible]
Doctors' Hospital [1-3]	Seattle	A. W. Lobb	4,087	31	1	2	[illegible]
Providence Hospital [1-3]	Seattle	L. J. Rosellini	5,212	74	1	2	[illegible]
Sacred Heart Hospital [3]	Spokane, Wash.	D. G. Corbett	10,981	78	1	1	[illegible]
Laird Memorial Hospital [1-3]	Montgomery, W. Va.	W. R. Laird	2,101	17	..	1	[illegible]
Mercy Hospital [1-3]	Janesville, Wis.	E. Reinardy	3,643	5	3	3	[illegible]
La Crosse Lutheran Hospital [1-3]	La Crosse, Wis.	S. B. Gundersen	2,332	17	2	2	[illegible]
Methodist Hospital	Madison, Wis.	L. E. Holmgren	5,076	50	1	1	[illegible]
Evangelical Deaconess Hospital [1-3]	Milwaukee	H. B. Benjamin	1,484	15	3	4	[illegible]
St. Luke's Hospital [1-3]	Milwaukee	R. G. Galasinski	3,056	45	3	3	[illegible]

27. THORACIC SURGERY

Residency programs in the following hospitals have been approved by the Council and the Board of Thoracic Surgery, as offering acceptable training in the specialty.

Hospitals, 95; Assistant Residencies and Residencies, 204

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Salaries (Monthly)
UNITED STATES ARMY								
Letterman Army Hospital [1-3]	San Francisco	....	150	7	..	..	2	...
Fitzsimons Army Hospital [1]	Denver	J. M. Salyer	939	9	2	4	2	...
Army Medical Center [1-3]	Washington, D. C.	E. J. Jahnke, Jr.	143	4	2	4	2	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	San Diego, Calif.	J. M. Hanner	180	13	1	2	2	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	R. N. Grant	184	1	1	2	2	...
NONFEDERAL AND VETERANS ADMINISTRATION								
City of Hope Medical Center [1-3]	Duarte, Calif.	A. Goldman	464	25	1	1	1	[illegible]
Veterans Admin. Hospital [1-3]	Los Angeles	F. X. Byron	374	87	1	2	2	[illegible]
Highland-Alameda County Hospital [1-68]	Oakland, Calif.	P. Samson	321	7	2	3	2	[illegible]

Numerical and other references will be found on pages 556 through 559.

27. THORACIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
or General Hospital [1]	Torrance, Calif.	B. H. Ramsay	119	6	1	2	2	246
nal Jewish Hospital [1-3]	Denver	J. B. Grow	430	2	1	2	2	260
-New Haven Community Hospital [1-3]	New Haven, Conn.	G. E. Lindskog	565	21	..	1	2	150
rrest Hospital [1-3]	Newington, Conn.	R. L. Kemler	301	4	1	1	1	335
s on Thames [1-3]	Norwich, Conn.	W. O. Kelley	491	6	2	2	1	335
ge Washington University Hospital [1-3]	Washington, D. C.	B. Blades	483	18	1	2	2	250
ersity Hospital [1]	Augusta, Ga.	R. Major	199	11	..	2	2	200
ago State Tuberculosis Sanitarium [1-3]	Chicago	H. T. Langston	278	3	2	2	1	300
lren's Memorial Hospital [1-3]	Chicago	W. J. Potts	.....	..	..	1	1	75
of Chicago Municipal Tuberculosis Sanitarium [1-3]	Chicago	W. M. Lees	1,500	12	..	9	1	185
hwestern University Medical Center								
terans Admin. Research Hospital [1]	Chicago	F. W. Preston	180	2	..	1	2	...
rans Admin. Hospital [1]	Hines, Ill.	H. T. Langston	362	14	1	4	2	...
e University of Iowa Hospitals [1-3]	Iowa City	J. H. Ehrenhaft	Incl. in Surgery		..	2	2	200
ersity of Kansas Medical Center [1-3]	Kansas City, Kan.	F. Allbritten, Jr.	199	..	..	1	2	200
ity Hospital of Louisiana								
uisiana State University Unit [1]	New Orleans	L. H. Strug	162	6	1	2	2	200
lane University Unit [1]	New Orleans	O. Creech	193	6	1	2	2	200
federate Memorial Medical Center [1]	Shreveport, La.	W. W. McCook	242	4	..	1	2	200
ersity Hospital [1-3]	Baltimore	R. A. Cowley	171	7	3	5	2	75
ton City Hospital [1-3]	Boston	J. W. Strieder	287	16	..	2	2	162
ton Sanatorium [1-3]	Boston	J. W. Strieder	140	..	1	3	1	202
England Deaconess Hospital [1-3]	Boston	R. H. Overholt	Incl. in Surgery		2	5	2	200
rans Admin. Hospital [1-3]	Rutland Heights, Mass.	W. W. Wilson	754	38	1	1	1	...
ersity Hospital [1-3]	Ann Arbor, Mich.	C. Haight	743	33	2	6	2	186
ry Ford Hospital [1-3]	Detroit	C. R. Lam	Incl. in Surgery		1	2	2	225
man Kiefer Hospital [1-3]	Detroit	W. M. Tuttle	937	5	4	7	2	526
ham Chest Hospital	Lansing, Mich.	C. J. Stringer	641	9	1	2	2	400
rans Admin. Hospital [1-3]	Minneapolis	D. J. Ferguson	117	19	1	1	2	...
o Foundation [1-3]	Rochester, Minn.	O. T. Clagett	Incl. in Surgery		..	..	2	175
ersity Hospital [1]	Jackson, Miss.	J. D. Hardy	24	..	..	2	1	...
issippi State Sanatorium	Sanatorium, Miss.	W. R. Webb	173	2	1	1	1	300
souri State Sanatorium [1-3]	Mount Vernon, Mo.	J. W. Polk	627	29	2	3	1	500
nes Hospital [1-3]	St. Louis	T. H. Burford	803	40	3	3	2	...
erans Admin. Hospital [1-3]	St. Louis	T. H. Burford	264	22	1	2	2	...
Pollak Hospital for Chest Diseases	Jersey City, N. J.	F. Bortone	111	..	..	2	2	167
gs County Hospital								
ivision I	Brooklyn, N. Y.	E. H. Griffin	218	4	1	2	2	104
ivision II [1-3]	Brooklyn, N. Y.	M. Newman	192	16	1	2	2	104
erans Admin. Hospital [1-3-237]	Brooklyn, N. Y.	R. Klopstock	458	3	..	1	2	...
falo General Hospital [1-3-214]	Buffalo	J. R. Paine	690	40	2	4	2	300
ard J. Meyer Memorial Hospital [1-3]	Buffalo	J. D. Stewart	94	4	..	2	2	248
erans Admin. Hospital [1-3]	Buffalo	W. M. Chardack	150	5	1	2	2	...
erans Admin. Hospital [1-3]	Castle Point, N. Y.	R. Douglass	127	3	..	2	1	...
boro Hospital [1-3]	Jamaica, N. Y.	L. Miscall	199	17	3	5	2	157
unt Morris Tuberculosis Hospital [1-3]	Mount Morris, N. Y.	J. M. Judd	139	2	1	1	1	630
levue Hospital Center								
Div. I—Columbia University [1-3-256]	New York City	R. H. Wylie	Incl. in Pul. Diseases		2	4	2	105
onx Municipal Hospital Center [1-3]	New York City	C. B. Ripstein	103	3	2	4	2	157
ntefiore Hospital [1-3]	New York City	A. H. Aufses	176	5	..	1	1	187
w York Medical College-Metropolitan Medical Center								
Metropolitan Hospital [1-3]	New York City	S. A. Thompson	74	6	1	2	1	104
Joseph's Hospital for Chest Diseases [1-3]	New York City	W. W. Fischer	643	7	1	2	1	250
terans Admin. Hospital [1-3]	New York City (Bronx)	A. Himmelstein	125	7	..	..	2	...
mer Folks Tuberculosis Hospital [1-3]	Oneonta, N. Y.	A. M. Skinner	197	5	2	2	1	495
y Brook State Tuberculosis Hospital [1-3]	Ray Brook, N. Y.	D. V. Pecora	242	..	2	2	1	495
a View Hospital [1-3-259]	Staten Island, N. Y.	L. R. Davidson	260	4	2	4	2	157
terans Admin. Hospital [1-3]	Sunmount, N. Y.	A. M. Decker, Jr.	367	..	..	1	1	...
rth Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	R. M. Peters	232	5	..	1	1	239
arlotte Memorial Hospital [1]	Charlotte, N. C.	A. G. Brenizer, Jr.	195	7	1	2	2	250
ke University Hospital [1-3]	Durham, N. C.	W. C. Sealy	518	5	..	..	2	...
terans Admin. Hospital [1-3]	Oteen, N. C.	H. E. Walkup	595	34	..	5	2	...
rth Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	.....	267	12	..	..	2	...
ty Hospital [1-3]	Cleveland	G. H. A. Clowes, Jr.	191	16	..	2	2	150
eveland Clinic Hospital [1-3]	Cleveland	D. B. Effler	373	14	2	3	2	250
nny Acres-Cuyahoga County Tuberculosis Hospital [1-3]	Cleveland	.....	138	4	1	1	1	458
terans Admin. Hospital [1-3-305]	Cleveland	H. J. Mendelsohn	110	14	1	2	2	...
enjamin Franklin-Mount Carmel Hospitals [1-3]	Columbus, Ohio	M. G. Buckles	810	22	1	1	2	400
hio State University Hospitals								
Ohio Tuberculosis Hospital [1-3]	Columbus, Ohio	N. C. Andrews	290	7	..	2	2	152
University Hospital [1-3]	Columbus, Ohio	K. P. Klassen	679	20	..	2	2	252
iversity of Oregon Medical School								
Hospitals and Clinics [1]	Portland, Ore.	W. S. Conklin	277	7	1	2	2	100
iscopal Hospital [1-3]	Philadelphia	R. P. Glover-T. J. E. O'Neill.	102	4	1	2	1	150
ahnemann Medical College and Hospital [1-3]	Philadelphia	C. P. Bailey	1,219	73	5	5	2	75
esbyterian Hospital [1-3]	Philadelphia	F. G. Harrison, Sr.	332	6	1	1	1	150
ealth Center Hospitals of the								
University of Pennsylvania School of Medicine	Pittsburgh	E. M. Kent	690	14	1	4	3	175
Allegheny General Hospital		.....	.....	..	..	..	..	...
Children's Hospital		.....	.....	..	..	..	..	...
Presbyterian Hospital		.....	.....	..	..	..	..	...
eterans Admin. Hospital [1-3]	Memphis, Tenn.	F. A. Hughes	516	39	..	1	2	...
West Tennessee Tuberculosis Hospital	Memphis, Tenn.	F. H. Cole	365	2	2	4	2	200
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	R. A. Daniel	260	10	..	1	2	50
Baylor University Hospital [1-3-37]	Dallas, Texas	R. Shaw	492	6	2	2	2	215
Veterans Admin. Hospital [1-3]	Dallas, Texas	R. H. Holland	210	7	1	2	2	...
niversity of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	A. W. Harrison	Incl. in Surgery		1	2	2	100
Baylor University College of Medicine Affiliated Hospitals		.....	.....	..	..	..	2	...
Jefferson Davis Hospital [1-3]	Houston, Texas	M. E. DeBakey	.....	..	1	2	..	...
Methodist Hospital [1-3]	Houston, Texas	L. L. D. Tuttle	627	8	..	..	..	100
Veterans Admin. Hospital [1-3]	Houston, Texas	M. E. DeBakey	201	15	1	2	..	...
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	W. R. Rumel	301	8	..	1	2	275
University of Virginia Hospital [1-3]	Charlottesville, Va.	E. C. Drash	691	12	..	2	2	50
Veterans Admin. Hospital [1-3-374]	Richmond, Va.	L. H. Bosher, Jr.	337	13	1	2	2	...
Firland Sanatorium [1-3]	Seattle	F. J. Jarvis	195	8	1	1	1	300
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	F. Raine	226	9	1	1	2	...
Leahi Hospital [1-3]	Honolulu, T. H.	P. W. Gebauer	.....	1	1	1	1	400

Numerical and other references will be found on pages 556 through 559.

28. UROLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Urology, through the Residency Review Committee for Urology. These programs are approved for THREE years of training. All hospitals listed offer three years of training intramurally or on an integrated basis through affiliation with another approved institution.

Hospitals, 233; Assistant Residencies and Residencies, 708

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	[illegible]
UNITED STATES ARMY							
Letterman Army Hospital [1-3]	San Francisco	E. Lewis	333	5	1	3	[illegible]
Army Medical Center [1-3]	Washington, D. C.	J. F. Patton	482	8	2	6	[illegible]
Brooke Army Hospital [1-3]	San Antonio, Texas	L. K. Mantell	1,019	9	2	6	[illegible]
Tripler Army Hospital [1]	Honolulu, T. H.	R. T. Artman	1,249	4	1	3	[illegible]
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Oakland, Calif.	M. S. Curtis	685	6	1	3	[illegible]
U. S. Naval Hospital [1]	San Diego, Calif.	J. R. Dillon, Jr.	1,404	12	1	3	[illegible]
U. S. Naval Hospital [1-3]	Bethesda, Md.	J. S. Hanten	2,265	..	1	3	[illegible]
U. S. Naval Hospital [1]	St. Albans, N. Y.	J. T. Richardson	532	1	1	3	[illegible]
U. S. Naval Hospital [1]	Philadelphia	R. P. Black	623	3	1	3	[illegible]
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y.	C. D. Miller	764	7	1	4	[illegible]
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1-3]	Washington, D. C.	R. F. Jones	273	7	..	1	[illegible]
NONFEDERAL AND VETERANS ADMINISTRATION							
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	H. C. Hudson	529	2	..	1	[illegible]
University of Alabama Medical Center							
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	B. Barelare	398	8	2	3	[illegible]
Veterans Admin. Hospital [1]	Birmingham, Ala.	F. D. Howard	308	10	1	1	
University Hospital [1]	Little Rock, Ark.	J. Headstream	260	3	1	4	[illegible]
Kern County General Hospital [1]	Bakersfield, Calif.	S. G. Kearney	324	7	1	2	[illegible]
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	A. J. Bischoff	641	15	1	3	[illegible]
Kaiser Foundation Hospital [1-3]	Los Angeles	J. F. Cooper	900	..	1	2	[illegible]
Los Angeles County Hospital [1]	Los Angeles	J. J. Crane	3,101	84	2	8	[illegible]
University of California Medical Center							
University Hospital [1-3]	Los Angeles	W. E. Goodwin	289	..	1	4	[illegible]
Veterans Admin. Hospital [1-3]	Los Angeles	W. E. Goodwin	1,283	46	3	9	[illegible]
Harbor General Hospital [1]	Torrance, Calif.	E. Belt	520	20	1	4	[illegible]
White Memorial Hospital [1-3-107]	Los Angeles	R. T. Bergman	491	2	1	2	[illegible]
Presbyterian Hospital-Olmsted Memorial [1-3-107]	Los Angeles	T. Powell	1,050	2	1	1	[illegible]
Highland-Alameda County Hospital [1]	Oakland, Calif.	H. Kay	475	14	1	1	[illegible]
San Diego County General Hospital [1-3]	San Diego, Calif.	E. Le Duc	333	7	1	3	[illegible]
Southern Pacific General Hospital [1-3]	San Francisco	T. E. Gibson	392	4	1	3	[illegible]
Stanford University Hospitals							
San Francisco Hospital—(Stanford University Service) [1-3]	San Francisco	W. A. Sumner	279	7	..	2	[illegible]
Stanford University Hospitals [1-3]	San Francisco	H. Weyrauch	501	5	1	2	[illegible]
University of California Hospitals							
Franklin Hospital [1-3]	San Francisco	J. W. Schulte	331	5	1	1	[illegible]
San Francisco Hospital-(University of California Service) [1-3]	San Francisco	S. Olsen	278	13	2	2	[illegible]
University of California Hospital [1-3]	*San Francisco*	*D. R. Smith*	649	4	1	3	[illegible]
Santa Clara County Hospital [1-3]	San Jose, Calif.	L. J. Pingree	282	9	..	1	[illegible]
Veterans Admin. Hospital [1-3]	San Francisco	H. M. Weyrauch-D. R. Smith	300	10	1	3	[illegible]
University of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	D. E. Newland	245	8	1	3	[illegible]
Denver General Hospital [1-3]	Denver	D. E. Newland	219	8	..	..	[illegible]
Veterans Admin. Hospital [1-3]	Denver	O. G. Stonington	537	15	..	..	[illegible]
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	B. M. Harvard	908	10	1	3	[illegible]
Veterans Admin. Hospital	West Haven, Conn.		.....	..	..	..	[illegible]
Hospital of St. Raphael [3]	New Haven, Conn.	L. L. Maurer	596	6	1	3	[illegible]
Waterbury Hospital [1]	Waterbury, Conn.	C. H. Neuswanger	590	7	1	2	[illegible]
Delaware Hospital [1-3]	Wilmington, Del.	B. S. Vallett	337	12	1	3	[illegible]
District of Columbia General Hospital [1-3]	Washington, D. C.	R. Baker-L. Culbertson	347	2	1	3	
Veterans Admin. Hospital [1-3-101]—Georgetown University Hospital	Washington, D. C.	J. G. Lee	303	5	..	3	[illegible]
Duval Medical Center-St. Vincent's Hospital [1-3]	Jacksonville, Fla.	R. B. McIver	948	15	1	5	[illegible]
Jackson Memorial Hospital [1-3]	Miami, Fla.	M. M. Coplan-W. L. Fitzgerald	944	16	2	6	[illegible]
Orange Memorial Hospital [1-3]	Orlando, Fla.	L. M. Orr-F. J. Pyle	1,245	18	1	3	[illegible]
Grady Memorial Hospital [1-3]	Atlanta, Ga.	M. K. Bailey	641	11	2	6	[illegible]
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	H. P. McDonald	976	3	1	3	[illegible]
Veterans Admin. Hospital [1-3-111]	Atlanta, Ga.	M. K. Bailey	383	8	2	3	[illegible]
Medical College of Georgia Hospitals		J. R. Rinker	.....	..	..	..	[illegible]
Eugene Talmadge Memorial Hospital [1]	Augusta, Ga.		.....	..	..	..	[illegible]
University Hospital [1]	Augusta, Ga.	T. Everett	531	3	..	6	[illegible]
Memorial Hospital of Chatham County [1-3]	Savannah, Ga.	C. L. Prince	433	5	1	3	[illegible]
Cook County Hospital [1-3]	Chicago	W. J. Baker	1,165	46	1	4	[illegible]
Mercy Hospital [1-3]	Chicago	H. E. Landes	811	5	..	1	[illegible]
Michael Reese Hospital	Chicago	I. Shapiro	956	19	1	3	[illegible]
Mount Sinai Hospital [1-3]	Chicago	L. A. Maslow	502	5	1	3	[illegible]
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital [1-3]	Chicago	V. J. O'Conor	897	6	1	2	[illegible]
Veterans Admin. *Research* Hospital [1]	Chicago	F. W. Preston-V. J. O'Conor	333	11	1	2	[illegible]
Presbyterian Hospital [1-3]	Chicago	N. J. Heckel	595	2	1	3	[illegible]
St. Luke's Hospital [1-3]	Chicago	W. J. Baker	642	7	1	1	[illegible]
University of Chicago Clinics [1-3]	Chicago	C. W. Vermeulen	553	13	1	4	[illegible]
University of Illinois Research and *Educational Hospitals* [1-3]	Chicago	J. H. Kiefer	530	5	..	1	[illegible]
Veterans Admin. Hospital [1-123]	Hines, Ill.	F. Lloyd	1,144	25	2	6	[illegible]
Indiana University Medical Center							
Indianapolis General Hospital [1]	Indianapolis	R. D. Howell	323	8	1	3	[illegible]
Indiana University Hospitals [1-127]	Indianapolis	R. Garrett	297	10	1	4	[illegible]
Veterans Admin. Hospital [1-3-400]	Indianapolis	E. Ruppel	257	..	..	1	[illegible]
Methodist Hospital [1]	Indianapolis	M. Nourse	2,030	17	..	2	[illegible]
Veterans Admin. Hospital [1-3-17]	Des Moines, Iowa	L. J. Arduino	724	12	1	3	[illegible]
State University of Iowa Hospitals [1-3]	Iowa City	R. H. Flocks	2,007	26	3	8	[illegible]
University of Kansas Medical Center		W. L. Valk	.....	..	..	..	[illegible]
University Hospital	Kansas City, Kan.		854	16	2	6	[illegible]
Veterans Admin. Hospital [1]	Kansas City, Mo.		299	14	..	..	[illegible]
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	I. S. Brown	157	8	1	3	[illegible]
University of Louisville Medical Center							
St. Joseph Hospital [1-3]	Lexington, Ky.	E. H. Ray	596	6	1	1	[illegible]
Louisville General Hospital [1-3]	Louisville, Ky.	R. Lich, Jr.	309	4	..	3	[illegible]
Veterans Admin. Hospital [1-3]	Louisville, Ky.	H. I. Berman	288	13	1	2	[illegible]

Numerical and other references will be found on pages 556 through 559.

28. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
arity Hospital of Louisiana							
ndependent Unit [1]	New Orleans	R. J. Mailhes	493	9	1	3	100
ouisiana State University Unit [1]	New Orleans	H. T. Beacham	968	5	2	6	100
ulane University Unit [1]	New Orleans	E. Burns	1,175	13	2	7	100
isner Foundation Hospital [1-151]	New Orleans	E. Burns	466	3	1	3	225
erans Admin. Hospital [1-3-398]	New Orleans	E. Burns	408	11	1	2	...
ouro Infirmary [1-398]	New Orleans	G. C. Tomskey	945	3	..	..	...
nfederate Memorial Medical Center [1]	Shreveport, La.	R. K. Womack	1,053	5	1	4	125
ins Hopkins Hospital [1-3-155]	Baltimore	W. W. Scott	989	13	2	6	150
ai Hospital [1-3]	Baltimore	B. S. Abeshouse	692	11	2	5	110
versity Hospital [1-3]	Baltimore	J. D. Young	738	6	1	3	75
terans Admin. Hospital [1-3-159]	Fort Howard, Md.	H. J. Meisel	182	9	1	1	...
th Israel Hospital [1-3]	Boston	G. Prather	462	..	1	1	58
ston City Hospital [1-3]	Boston	F. G. Sheddan, Jr.	539	9	..	5	162
ssachusetts General Hospital [1-3]	Boston	W. F. Leadbetter	1,524	..	1	3	67
ssachusetts Memorial Hospitals [1-3-174]	Boston	S. N. Vose	456	1	1	3	100
w England Center Hospital [1-3]	Boston		214	2	..	1	100
ter Bent Brigham Hospital [1-3-399]	Boston	J. H. Harrison	Incl. in Surgery		..	3	42
Veterans Admin. Hospital [1-3-399]	West Roxbury, Mass.	H. S. Talbot	257	7	1	2	...
terans Admin. Hospital [1-3-151]	Boston (Jamaica Plain)	R. Chute	786	16	1	3	...
iversity Hospital [1-3]	Ann Arbor, Mich.	R. M. Nesbit	1,509	10	3	9	186
ace Hospital [1-3]	Detroit	C. G. Weltman	848	8	1	2	275
arper Hospital [1-3]	Detroit	F. B. Bicknell	1,600	13	1	3	250
nry Ford Hospital [1-3]	Detroit	A. W. Bohne	844	5	2	6	225
ceiving Hospital [1-3]	Detroit	D. J. Jaffar	741	17	2	8	289
ayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	W. L. Sherman	437	21	1	4	316
nneapolis General Hospital [1-3]—St. Mary's Hospital [1-3]	Minneapolis	T. H. Sweetser, Sr.	1,275	22	1	5	200
iversity of Minnesota Hospitals [1-3-202]	Minneapolis	C. D. Creevy	835	8	1	4	185
terans Admin. Hospital [1-3]	Minneapolis	C. D. Creevy	512	15	..	2	...
ayo Foundation [1-3]	Rochester, Minn.	G. J. Thompson	3,412	15	5	20	175
ncker Hospital [1-3]—Charles T. Miller Hospital [1-3]	St. Paul	F. E. B. Foley	935	20	1	4	185
iversity of Mississippi Medical Center							
University Hospital [1]	Jackson, Miss.	T. Ainsworth	170	4	..	1	250
Veterans Admin. Hospital [1-3]	Jackson, Miss.	S. A. Sabatini	303	14	..	1	...
ansas City General Hospital No. 1	Kansas City, Mo.	A. L. Stockwell	374	2	1	3	200
arnes Hospital [1-3-217]	St. Louis	J. J. Cordonnier	1,086	19	2	6	75
omer G. Phillips Hospital [1-3]	St. Louis	M. Abrams	422	9	2	7	227
issouri Pacific Hospital [3]	St. Louis	A. E. Vitt	583	5	..	1	200
. Louis City Hospital [1-3]	St. Louis	C. A. Wattenberg-W. P. Melick	[illegible]55	10	1	3	92
. Mary's Group of Hospitals [1-3]	St. Louis	C. E. Burford	702	11	1	3	100
eterans Admin. Hospital [1-3]	St. Louis	J. P. Altheide	320	6	1	3	...
artmouth Medical School Affiliated Hospitals		W. L. McLaughlin	869	11	1	3	218
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.		.....	..	..	..	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt.		.....	..	..	..	...
eterans Admin. Hospital [1]	East Orange, N. J.	M. Malament	470	12	1	3	...
ersey City Medical Center [1-3]	Jersey City, N. J.	E. J. Daly	450	4	1	3	146
arrison S. Martland Medical Center [1-3]	Newark, N. J.	E. Swidman	370	7	1	3	162
lbany Hospital [1-3]	Albany, N. Y.	W. A. Milner	950	13	1	3	160
ewish Hospital [1-3]	Brooklyn, N. Y.	A. Segal-P Katzen	752	7	1	3	100
ings County Hospital							
Division I [1-3]	Brooklyn, N. Y.	G. Horton	496	10	1	3	104
Division II [1-3]	Brooklyn, N. Y.	F. C. Hamm	592	14	1	3	104
ong Island College Hospital [1-3]	Brooklyn, N. Y.	H. C. Harlin	695	4	1	3	156
aimonides Hospital [1-3]	Brooklyn, N. Y.	H. Hermann	1,038	9	1	3	75
ethodist Hospital [1-3]	Brooklyn, N. Y.	O. P. Schoenemann	748	3	1	1	175
eterans Admin. Hospital [1-3]	Brooklyn, N. Y.	F. L. Senger	554	16	1	3	...
uffalo General Hospital [1-3-215-405]	Buffalo	O. J. Oberkircher	937	6	1	3	175
Roswell Park Memorial Hospital [1-3-405]	Buffalo	W. Staubitz	321	17	..	2	300
dward J. Meyer Memorial Hospital [1-3-215]	Buffalo	E. L. Brodie	447	10	1	3	248
illard Fillmore Hospital [1-3]	Buffalo	P. A. Greco	971	3	1	3	285
eterans Admin. Hospital [1-3]	Buffalo	W. M. Chardack	416	10	1	3	...
lmhurst General Hospital [1-3-17]	Elmhurst, N. Y.	G. A. Fiedler	290	5	1	3	104
eadowbrook Hospital [1-3]	Hempstead, N. Y.	R. M. Bowles	549	29	1	3	225
ueens General Hospital [1-3]	Jamaica, N. Y.	E. Rubin	550	15	1	3	105
ellevue Hospital Center							
Div II—Cornell University [1-3]	New York City	J. Draper	480	9	1	4	71
Div. IV—New York University							
Post-Graduate Medical School [-214]	New York City	R. Hotchkiss	384	6	..	4	71
Beth Israel Hospital [1-3]	New York City	S. F. Wilhelm	745	7	1	3	140
Bronx Municipal Hospital Center [1-3]	New York City	H. R. Newman	234	13	2	4	105
Francis Delafield Hospital [1-3]	New York City	J. K. Lattimer	291	30	3	7	105
French Hospital [1-3]	New York City	J. D. Cooney	516	5	1	3	83
Lincoln Hospital [1-3-400]	New York City	F. P. Twinem	158	2	..	2	105
Hackensack Hospital [1-3-400]	Hackensack, N. J.	F. P. Twinem	470	6	1	1	150
Morrisania City Hospital [1-3]	New York City	J. J. Roth	588	8	2	4	104
Mount Sinai Hospital [1-3]	New York City	G. D. Oppenheimer	1,355	11	3	5	75
New York Hospital [1-3]	New York City	V. Marshall	1,120	..	2	6	185
New York Medical College—Metropolitan Medical Center							
Metropolitan Hospital [1-3]	New York City	T. J. Kirwin	495	7	1	3	104
New York Polyclinic Medical School and Hospital [1-3]	New York City	J. S. Ritter	625	9	1	3	125
Presbyterian Hospital	New York City	J. K. Lattimer	1,632	6	4	8	250
Roosevelt Hospital [1-3]	New York City	S. A. Beisler	546	8	1	3	133
St. Clare's Hospital [1-3]	New York City	G. A. Fiedler	320	1	1	3	200
St. Luke's Hospital	New York City	J. A. Taylor	601	8	1	3	100
Veterans Admin. Hospital [1-3]	New York City (Bronx)	A. L. Dean	990	26	2	5	...
Veterans Admin. Hospital [1-3]	New York City (Manhattan)	A. H. Ulm	431	6	1	3	...
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	W. W. Scott	889	..	1	3	117
State University of New York Upstate Medical							
Center Hospitals [1-3]	Syracuse, N. Y.	F. O. Harbach	903	15	..	3	233
Veterans Admin. Hospital [1-3]	Syracuse, N. Y.	W. L. Parry	354	8	..	..	...
North Carolina Memorial Hospital [1-3-401]	Chapel Hill, N. C.	P. L. Bunce	315	2	..	1	239
Watts Hospital [1-3-401]	Durham, N. C.	L. C. Roberts	648	2	1	3	175
Charlotte Memorial Hospital [1]	Charlotte, N. C.	H. W. McKay	1,413	10	1	4	250
Duke University Affiliated Hospitals		E. P. Alyea	.....	..	..	..	...
Duke Hospital [1-3]	Durham, N. C.		650	3	2	6	127
Veterans Admin. Hospital [1-3]	Durham, N. C.		373	5	..	..	...
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	F. K. Garvey	1,014	4	1	3	125
Akron City Hospital [1-3]	Akron, Ohio	R. G. McCready	1,006	20	1	3	250
University of Cincinnati School of Medicine Hospital Group							
Cincinnati General Hospital [1-3]	Cincinnati	T. B. Wayman	721	16	2	6	50
City Hospital [1-3]	Cleveland	H. R. Trattner	307	5	1	3	162.50
Cleveland Clinic Hospital [1-3]	Cleveland	C. C. Higgins	1,377	7	3	8	175
Huron Road Hospital [1-3]	Cleveland	V. C. Laughlin	671	8	1	2	210
Western Reserve University Medical School Affiliated Hospitals							
University Hospitals [1-3]	Cleveland	L. Persky	750	2	..	3	125
Veterans Admin. Hospital [1-3-307]	Cleveland	G. Austen, Jr.	385	21	1	3	...

Numerical and other references will be found on pages 556 through 559.

28. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Monthly)
Ohio State University Hospitals							
University Hospital [1-3-312]	Columbus, Ohio	W. N. Taylor	770	18	..	3	[illegible]
Veterans Admin. Hospital [1-3]	Dayton, Ohio	E. F. Kelly	247	9	1	2	...
St. Vincent's Hospital [1-3-402]	Toledo, Ohio	E. A. Ockuly	1,099	9	1	4	[illegible]
Maumee Valley Hospital [1-3-402]	Toledo, Ohio	A. S. Avery	206	7	..	..	...
University of Oklahoma Medical Center		D. W. Branham	.....	..	..	..	...
University Hospital [1-3]	[illegible]		321	7	1	2	...
Veterans Admin. Hospital [1-3]	[illegible]		233	9	..	1	...
University of Oregon Medical School							
Hospitals and Clinics [1-327]	Portland, Ore.	C. V. Hodges	457	10	1	4	[illegible]
Veterans Admin. Hospital [1-3]	Portland, Ore.	D. P. Paull	680	6	..	1	...
Geo. F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	W. I. Buchert	1,149	8	1	3	[illegible]
Hamot Hospital [1-3]	Erie, Pa.	R. C. Lyons	498	7	1	3	[illegible]
St. Vincent's Hospital [1-3]	Erie, Pa.	E. Hess	1,022	15	1	4	[illegible]
Harrisburg Hospital	Harrisburg, Pa.	J. L. Lanshe-R. E. Allyn	681	11	1	1	[illegible]
Albert Einstein Medical Center [1-3]	Philadelphia	M. Muschat	1,283	11	1	3	[illegible]
Episcopal Hospital [1-3]	Philadelphia	G. D. Shoup	444	5	1	2	[illegible]
Graduate Hospital of the University of Pennsylvania [1-3-403]	Philadelphia	H. M. Burros	281	3	2	2	...
Mercy Hospital [1-3-403]	Wilkes-Barre, Pa.	P. P. Mayock	391	3	1	1	[illegible]
Hahnemann Medical College and Hospital [1-3]	Philadelphia	E. W. Campbell	.....	..	1	3	[illegible]
Hospital of the University of Pennsylvania [1-3]	Philadelphia	B. Hughes	1,023	10	1	4	[illegible]
Jefferson Medical College Hospital [1-3]	Philadelphia	T. R. Fetter	1,381	13	..	3	[illegible]
Pennsylvania Hospital [1-3]	Philadelphia	L. B. Greene	599	5	2	2	[illegible]
Philadelphia General Hospital [3]	Philadelphia	L. McCrea	357	21	1	4	[illegible]
Temple University Hospital [1-3]	Philadelphia	K. B. Conger	648	5	1	2	...
Veterans Admin. Hospital [1-3]	Philadelphia	P. B. Hughes	529	12	..	2	...
Allegheny General Hospital [1]	Pittsburgh	J. L. Hamilton	731	3	1	2	[illegible]
Mercy Hospital [1-3]	Pittsburgh	C. C. Altman	657	1	1	3	[illegible]
Health Center Hospitals of the University of Pittsburgh School of Medicine	Pittsburgh	J. J. Lee	463	2	1	3	[illegible]
Veterans Admin. Hospital [1-3]	Pittsburgh	C. A. Kuehn	508	8	1	4	...
Robert Packer Hospital [1-3]	Sayre, Pa.	W. Baurys	567	5	1	1	[illegible]
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.	W. J. Daw	635	10	1	1	[illegible]
Rhode Island Hospital [1-3]	Providence, R. I.	E. K. Landsteiner	760	15	1	2	[illegible]
Medical College of South Carolina Teaching Hospitals [1]	Charleston, S. C.	P. W. Sanders, Jr.	597	7	1	3	[illegible]
Orangeburg Regional Hospital [3]	Orangeburg, S. C.	L. P. Thackston	1,231	10	1	2	[illegible]
City of Memphis Hospitals [1-3-401]	Memphis, Tenn.	S. Raines	755	9	3	6	[illegible]
Baptist Memorial Hospital [1-3-46-401]	Memphis, Tenn.	H. D. Woodson	1,877	10	..	1	[illegible]
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	W. S. Bradley, Jr.	1,114	14	1	3	...
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	......	.....	..	..	..	[illegible]
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	C. E. Haines	289	1	1	1	[illegible]
Parkland Memorial Hospital [1-3-317]	Dallas, Texas	H. M. Spence	4	6	1	4	[illegible]
Veterans Admin. Hospital [1-3]	Dallas, Texas	P. A. Duff	547	9	1	2	...
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	C. A. Hooks	536	6	1	3	[illegible]
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital [1-3]	Houston, Texas	A. J. Leader	346	10	1	3	[illegible]
Methodist Hospital [1-3]	Houston, Texas	M. K. O'Heeron	223	2	..	..	[illegible]
St. Joseph Hospital	Houston, Texas	M. K. O'Heeron	737	6	1	1	[illegible]
St. Luk [illegible]	Houston, Texas	......	.....	..	..	..	...
Texas [illegible]	Houston, Texas	T. H. Guthrie	501	2	..	..	...
Veterans Admin. Hospital [1-3]	Houston, Texas	P. P. Deming	604	17	..	3	...
Hermann Hospital [1-3-351]	Houston, Texas	C. M. Crigler	1,917	9	1	4	[illegible]
University of Vermont Affiliated Hospitals							
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	P. Powell	320	5	1	3	[illegible]
Mary Fletcher Hospital [1-3]	Burlington, Vt.	P. Powell	381	5	1	4	[illegible]
University of Virginia Hospital [1-3]	Charlottesville, Va.	S. A. Vest	673	6	1	4	[illegible]
Medical College of Virginia-Hospital Division [1-3-373]	Richmond, Va.	A. I. Dodson	942	8	1	3	[illegible]
Veterans Admin. Hospital [1-3]	Richmond, Va.	R. C. Bunts	1,435	13	1	4	...
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	D. F. McDonald	416	16	1	2	[illegible]
Madison General Hospital [1-3]	Madison, Wis.	A. P. Schoenenberger	816	10	1	1	[illegible]
University Hospitals [1-3]	Madison, Wis.	J. B. Wear	572	8	1	4	[illegible]
Milwaukee County Hospital [1-3]	Milwaukee	R. S. Irwin	588	18	..	2	[illegible]
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	R. S. Irwin	907	25	1	4	...
San Juan City Hospital [1-3]	San Juan, P. R.	L. A. Sanjurjo	331	..	1	2	[illegible]

NUMERICAL AND OTHER REFERENCES

1. Appointments available to women applicants.
2. Appointments available to women applicants only
3. Appointments available to graduates of foreign medical schools
8. Includes fellowships.
10. Training at the third year level only.
12. May include one year fellowships in the Department of Cardiology.
13. May include one year of training at Cook County Hospital, Chicago, by special arrangement.
14. May include one year of surgical research at Louisiana State University School of Medicine.
15. Training limited to Contagious Diseases.
16. Approved for affiliate training only.
17. Formerly New York City Hospital, New York, N. Y.
18. Combined integrated program—Bellevue, Div. II (Cornell and Memorial Cancer Center)
19. Training in pediatric psychiatry (third year level)
20. To include one year of affiliate training at the second year level at the University Hospitals (Lakeside) Cleveland.
21. This one year of training is equivalent to one year of basic science as a part of an approved three year program.
22. University of Texas coordinates program of three years' duration.
23. An additional one year of fellowship training in cardio-pulmonary laboratory is available.
24. Includes one year of training at Veterans Administration Hospital, Iowa City
25. Provides training at the third year level, affiliate training with University of Minnesota Hospitals, Minneapolis, Minn.
26. Approved for affiliate training only.
27. Obstetrical and Gynecological pathology only.
28. Special pathology as a part of pathologic anatomy. See Board requirements.
29. Category P. Am. Bd. of Pathology. See Page 584.
30. LaRabida Sanitarium, Lewis Memorial Maternity Hospital, Contagious Disease Hospital, St. Joseph Hospital, St. Vincent's H pital, Chicago.
31. Methodist Hospital and St. Francis Hospital Divisions.
32. Approved for one year of training in Hematology as a part of addition to the residency training program in Internal Medicine.
33. Affiliate rotation at Yale-New Haven Medical Center, Grace-N Haven Community Hospital.
34. Six months of training is afforded at University Hospitals, Io City, Iowa.
35. Offer training at the third year level only.
36. Provides training at the 3rd year level, affiliated with University Minnesota Hospital, Minneapolis, Minn.
37. Includes one year of training at Parkland Memorial Hospital, Dal Texas.
38. Approved for training at the first year level.
39. One year affiliation available at Veterans Admin. Hospital, I City, Iowa.
40. Approved for one year of training equivalent to one year of b science as a part of an approved three year program.
41. Approved Category P. Residents interested should consult Page
42. Approved Category M. Residents interested should consult Page
43. Approved Category H. Residents interested should consult Page
44. Approved Category N-1. Residents interested should consult Page
45. Includes one year fellowship in the cardiopulmonary laboratory.
46. Provides one year of training at third year level as part of year program at City of Memphis Hospitals.
47. Includes one year of training at State University of Iowa Hosp Iowa City, Iowa.
50. John A. Andrew Memorial Hospital, Tuskegee Institute, Ala.; G. W. Hubbard Hospital, Nashville, Tenn.
51. John A. Andrew Memorial Hospital, Tuskegee Institute, Ala.; St. Jude Hospital, Montgomery, Ala.; Freedmen's Hospital, Washington, D. C.

John A. Andrew [illegible] kegee Institute, Ala.;
Illinois Eye and [illegible] Ill.
John A. Andrew [illegible] kegee Institute, Ala.
Pima County Ge [illegible] Ariz.
University Hospi
Valley Children's
Langley Porter Clinic, San Francisco, Calif.
Harbor General Hospital, Torrance, Calif.
Seaside Memorial Hospital, Long Beach, Calif.
Orange County General Hospital, Orange, Calif.;
Donald N. Sharp Memorial Com. Hospital, San Diego, Calif.;
Santa Monica Hospital, Santa Monica, Calif.
Children's Hospital, Los Angeles County General Hospital, Los Angeles, Calif.
Children's Hospital, Los Angeles, Calif.
Los Angeles County Hospital, Los Angeles, Calif.
University of California Medical Center, Los Angeles;
Harbor General Hospital, Torrance, Calif.
Child Guidance Clinic, Los Angeles,
Psychiatric Service, Reiss Davis Clinic,
University of California Medical Center,
Veterans Admin. Mental Hygiene Clinic, Los Angeles
San Joaquin [illegible] French Camp, Calif.
University of [illegible] geles;
Pasadena Ch [illegible] Calif.;
Pacific State
Samuel Merrit
Fairmont Ho [illegible] eandro, Calif.;
Samuel Merrit
Peralta Hospital, Oakland, Calif.
Samuel Merritt Hospital, Oakland, Calif.
Cowell Hospital,
State of California Mental Hygiene Clinic, Berkeley, Calif.;
Children's Hospital,
Langley Porter Clinic,
Mount Zion Hospital,
Stanford Lane Hospitals,
Veteran Admin. Hospital,
V. A. Regional Office Mental Hygiene Clinic, San Francisco, Calif.;
San Mateo Child Guidance Clinic, San Mateo, Calif.
2. Eye and Ear Hospital
Children's Hospital, Los Angeles, Calif.
3. Children's Hospital of the East Bay, Oakland, Calif.
4. Highland-Alameda County Hospital, Oakland, Calif.
5. California Babies & Children's Hospital
California Hospital, Los Angeles, Calif.
6. San Francisco Hospital, San Francisco, Calif
7. Stanford University Hospital, San Francisco, Calif.
8. Children's Medical Center, Boston, Mass.
9. University of California Hospital, San Francisco
0. *University of California Students' Health Service, Berkeley;*
(Cowell Memorial Hospital)
San Francisco City & County Hospital, San Francisco, Calif.
1. Santa Barbara General Hospital, Santa Barbara, Calif.
2. Veterans Admin. Hospital, Los Angeles, Calif.
3. University of Calif. Medical Center, Los Angeles, Calif.
4. Children's Hospital, Denver, Colo
5. Children's Hospital
St. Luke's Hospital, Denver, Colo.
6. Children's Hospital, Colorado General Hospital, *Denver General Hospital*, Fitzsimons Army Hospital, General Rose Hospital, Denver, *Colo.*
7. Colorado Psychiatric Hospital
Denver General Hospital, Denver, Colo.
8. *Denver* General Hospital, Denver, Colo.
9. Parkview Hospital, Pueblo, Colo.
0 Corwin Hospital, Pueblo, Colo.
1. Corwin Hospital,
St. Mary's Hospital, Pueblo, Colo.
2. J. J. McCook Memorial Ho [illegible]
Newington Home for Cripp [illegible] Conn.
Veterans Admin. Hospital, [illegible]
Beverly Hospital, Beverly, Mass.;
Holyoke Hospital, Holyoke, Mass.
93. Cedarcrest State T. B. Sanatorium, Newington, Conn.;
Veterans Admin. Hospital, Newington, Conn.
94. Cedarcrest State Tuberculosis *Sanatorium, Newington, Conn.;*
Uncas-on-Thames State *T.* B. Sanatorium, Norwich, Conn.;
Day-Kimball Hospital, Putnam, Conn.;
Johnson Memorial Hospital, Stafford Springs, Conn.
95. Veterans Admin. Hospital, Newington, Conn.
96. *Veterans Admin. Hospital,* Newington, Conn.;
State Veterans Home and Hospital, Rocky Hill, Conn.;
Memorial Hospital, New York, N. Y.
97. Veterans Admin. Hospital, West Haven, Conn.;
Windham Community Hospital, Willimantic, Conn.
98. Southbury *Training* School, Southbury, Conn.
99. Veterans Admin. Hospital, West Haven, Conn.
100. Hartford Hospital, New Haven, Conn.
101. Grace-New Haven Community Hospital, New Haven, Conn.;
Stamford Hospital, Stamford, Conn.
102. Grace-New Haven Community Hospital, New Haven, Conn.
103. District of Columbia General Hospital, Washington, D. C.
104. Children's Hospital, Washington, D. C.
105. District of Columbia General Hospital, Washington, D. C.
106. Armed Forces Institute of Pathology,
D. C. General Hospital,
Georgetown University Hospital, Washington, D. C.
107. Armed Forces *Institute of Pathology,*
George Washington University Hospital, Washington, D. C.
108. George Washington University Hospital,
Walter Reed Army Hospital, Washington, D. C.
109. Columbia Hospital, Washington, D. C.
110. St. Vincent's Hospital, Jacksonville, Fla.
111. Brewster Hospital, Jacksonville, Fla.
112. Duval Medical Center, Jacksonville, Fla.
113. Variety Children's Hospital, Miami, Fla.
114 Grady Memorial Hospital, Atlanta, Ga.
115. Eugene Talmadge Memorial Hospital,
University Hospital, Augusta, Ga.
116 Chicago Wesley Memorial Hospital, Chicago, Ill.
117. Municipal Tuberculosis Sanitarium, Chicago
118. Lewis Memorial Hospital,
St. Vincent's Infant Hospital, Chicago
119. Loretto Hospital,
Chicago State Hospital, Chicago;
Veterans Admin. Hospital, Hines, Ill.
120. Chicago Wesley Memorial Hospital,
Children's Memorial Hospital,
Veterans Admin. Research Hospital, Chicago
121. Presbyterian Hospital, Chicago, Ill.
122. Veterans Admin. West Side Hospital, Chicago, Ill.
123. Methodist Hospital, Peoria, Ill.
124. *Indiana University* Medical Center, Indianapolis, Ind.
125. *Cook County Hospital*, Chicago, Ill.
126. Indianapolis General Hospital,
Indiana University Medical Center, Indianapolis, Ind.
127. Methodist Hospital, Indianapolis, Indiana
128. Broadlawns Polk County Hospital, Des Moines, Ia.
129. State University of Iowa Hospitals, Iowa City, Ia.;
Raymond Blank Memorial Hospital, Des Moines, Ia.
130. State University of Iowa Hospitals, Iowa City, Ia.
131. Kansas Children Receiving Home, Atchison, Kansas;
Larned State Hospital, Larned, Kansas;
Osawatomie State Hospital, Osawatomie, Kansas;
Parsons State Training School, Parsons, Kansas;
Boys Industrial School, Topeka, Kansas;
Winfield State Training School, Winfield, Kansas
132. *Menninger Foundation,*
Shawnee Guidance Center, Topeka, Kansas
Topeka State Hospital, Topeka, Kansas
133. Children's Mercy Hospital,
St. Luke's Hospital, Kansas City, Mo.
134. Research Hospital,
Veterans Admin. Hospital, Kansas City, Mo.
135. Louisville Child Guidance Clinic, Louisville, Ky.
136. Children's Hospital, Louisville, Ky.
137. Kentucky Baptist Hospital, Louisville, Ky.
138. Children's Hospital,
Veterans Admin. Hospital, Louisville, Ky.
139. Children's Hospital,
Jewish Hospital,
Kentucky Baptist Hospital, Louisville, Ky.
140. St Joseph's Hospital, Lexington, Ky.;
Veterans Admin. Hospital, Louisville, Ky.
141. Children's Hospital,
Norton Memorial Hospital,
Veterans Admin. Hospital, Louisville, Ky.
142. Veterans Admin. Hospital, Louisville, Ky.
143 Louisville General Hospital, Louisville, Ky.
144. Kentucky Baptist Hospital, Louisville, Ky.
145. Charity Hospital of Louisiana, New Orleans, La.
146. Charity Hospital (Tulane Service) New Orleans, La.
147. E A. Conway Memorial Hospital, Monroe, La.
148. Crippled Children's Hospital,
Charity Hospital (Tulane Unit), New Orleans, La.
149. Lallie E Kemp Charity Hospital, Independence, La.;
Charity Hospital, (L. S. U.) New Orleans, La.
150. Lallie E. Kemp Charity Hospital, Independence, La;
E. A. Conway Memorial Hospital, *Monroe, La.;*
Huey P. Long Charity Hospital, Pineville, La.
151. Huey P. Long Charity Hospital, Pineville, La.
152. Veterans Admin. Hospital, Hines, Ill
153. Augusta State Hospital, Augusta, Maine;
Redington Memorial Hospital, Skowhegan, Maine;
Thayer Hospital, Waterville, Maine
154. Baltimore City Hospitals, Baltimore, Md.
155. *Inlow Clinic,* Shelbyville, Indiana
156. Hospital for the Women of Maryland, Baltimore, Md.
157. Johns Hopkins Hospital, Baltimore, Md.
158. Johns Hopkins Hospital,
Kanner's Clinic,
Harriet Lane Home, Baltimore, Md.
159. University Hospital, Baltimore, Md.
160. Jackson Clinic, Temple Univ., Philadelphia, Pa
161. Douglas A. Thom. Clinic for Children,
Massachusetts General Hospital,
Child Guidance Clinic,
V. A. Hospital,
V. A. H. Mental Hygiene Clinic, Boston, Mass.
162. *Pondville Hospital*, Walpole, Mass.
163. Boston City Hospital,
Boston State Hospital, Boston;
Chelsea Soldiers' Home, Chelsea, Mass.
164. Free Hospital for Women, Brookline, Mass.
165. St. Margaret's Hospital, Boston, Mass.
166. Soldiers' Home, Chelsea, Mass.
167. New England Baptist,
New England Deaconess Hospital,
Booth Memorial Hospital,
Parker Hill Medical Center,
Robert Breck Brigham, Boston, Mass.
168. Children's Medical Center, Boston
169. Boston Psychopathic Hospital, *Boston;*
Taunton State Hospital, Taunton, Mass.
170. New *England* Deaconess Hospital,
Isotope Division and M. I. T. Therapeutic X-*ray*, *Boston*
171. Boston City Hospital,
Sanatorial Division (Boston City Hospital) Mattapan, Boston·
Veterans Admin. Hospital, *Providence, R. I.*
172. Boston City Hospital, Boston
173. Beth Israel Hospital,
Veterans Admin. Hospital, Boston
174. Lynn Hospital, Lynn, Mass.
175. Boston State Hospital,
Boston Psychopathic Hospital, Boston;
Metropolitan State Hospital, Waltham, Mass.;
Worcester State Hospital, Worcester, Mass.
176. Boston City Hospital, Boston;
Soldiers' Home, Chelsea, Mass.
177. Evans Memorial Hospital,
Haynes Memorial Hospital,
Massachusetts General Hospital, Boston, Mass.
178. Lakeville Hospital, Middleboro, Mass.
179. Faulkner Hospital, Boston, Mass.
180. Lakeville State Sanatorium, *Middleboro*, Mass.
181. Massachusetts General Hospital, Boston, Mass.
182. Lemuel Shattuck Hospital,
Massachusetts General Hospital, Boston

APPROVED RESIDENCY TRAINING PROGRAMS

Number of Institutions, 1,256, Number of Programs, 5,255

Name	Location	Approved Residencies
Birmingham Baptist Hospital ★	Birmingham, Ala.	Path., Rad
Carraway Methodist Hospital ★	Birmingham, Ala.	Gen'l Pract, Int. Med, Obst., Path, Surg., Urol
Children's Hospital	Birmingham, Ala.	Neur., Ped., Psych
Crippled Children's Hospital	Birmingham, Ala.	Ortho. Surg.
University Hospital and Hillman Clinic ★	Birmingham, Ala.	Anes., Derm., Int. Med., Neur., Neuro. Surg, Ob-Gyn., Ophth, Ortho S Otol., Path, Ped, Psych, Rad, Surg., Urol.
Veterans Admin. Hospital	Birmingham, Ala.	Int. Med., Neur., Ophth, Ortho Surg, Otol., Path, Psych, Rad S Urol.
Lloyd Noland Hospital ★	Fairfield Ala.	Anes, Derm., Int Med., Ob.-Gyn, Ortho Surg, Path., Ped, Surg
U. S. Air Force Hospital	Maxwell Air Force Base, Ala.	Gen'l Pract
Mobile County Hospital ★	Mobile, Ala.	Int. Med., Ortho. Surg., Path, Ped, Surg
Veterans Admin. Hospital	Tuskegee, Ala.	Int. Med, Ophth, Surg.
Good Samaritan Hospital ★	Phoenix, Ariz.	Gen'l Pract., Ob.-Gyn., Path, Surg
Maricopa County General Hospital ★	Phoenix, Ariz	Gen'l Pract., Int Med, Ob.-Gyn, Path, Ped, Pul Dis, Surg
St Joseph's Hospital ★	Phoenix, Ariz	Int Med., Ob-Gyn., Path, Ped, Surg
St. Mary's Hospital and Sanatorium ★	Tucson, Ariz.	Gen'l Pract, Int. Med, Surg
Tucson Medical Center ★	Tucson, Ariz	Surg
Arkansas Baptist Hospital ★	Little Rock, Ark.	Ophth., Path., Surg
Arkansas Children's Hospital	Little Rock, Ark	Ortho Surg
St Vincent Infirmary ★	Little Rock, Ark	Anes.
University Hospital ★	Little Rock, Ark	Anes, Int Med, Ob-Gyn, Path, Ped, Rad, Surg, Urol
Veterans Admin Hospital	Little Rock, Ark	Int Med, Path, Surg
Veterans Admin Hospital	North Little Rock, Ark	Psych
St Michael's Hospital	Texarkana, Ark	Gen'l Pract
Agnews State Hospital	Agnew, Calif	Psych
General Hospital of Riverside County ★	Arlington, Calif	Gen'l Pract, Int. Med, Surg
Kern County General Hospital	Bakersfield, Calif	Gen'l Pract., Int. Med, Ob.-Gyn., Path, Ped, Rad, Surg, Urol.
Herrick Memorial Hospital ★	Berkeley, Calif	Int Med, Ob.-Gyn, Path, Psych, Surg
State of California	Berkeley, Calif.	Pub Health
St. Joseph Hospital	Burbank, Calif	Path.
Camarillo State Hospital	Camarillo, Calif	Psych
Compton Sanitarium	Compton, Calif	Psych
City of Hope Medical Center	Duarte, Calif	Int. Med, Mal Dis, Path, Pul. Dis., Thor Surg
San Joaquin General Hospital ★	French Camp, Calif	Int Med, Ob.-Gyn., Path, Ped, Rad, Surg
General Hospital of Fresno County ★	Fresno, Calif	Int. Med, Ob.-Gyn., Ophth., Ped, Surg.
Glendale Sanitarium and Hospital ★	Glendale, Calif	Int Med, Ob-Gyn, Path, Surg
Napa State Hospital	Imola, Calif	Psych
Loma Linda Sanitarium and Hospital ★	Loma Linda, Calif	Path
St Mary's Long Beach Hospital ★	Long Beach, Calif	Gen. Pract, Path
Seaside Memorial Hospital ★	Long Beach, Calif	Int Med, Obst, Path, Ped, Rad, Surg
Veterans Admin Hospital ★	Long Beach Calif	Allergy, Card Dis, Derm, Gastro., Int. Med, Neur, Neuro Surg, Op Ortho Surg., Path, Psych, Rad, Surg., Urol
Barlow Sanatorium	Los Angeles	Pul Dis
California Babies' and Children's Hospital	Los Angeles	Ped
California Hospital ★	Los Angeles	Int Med, Ob-Gyn, Path, Surg
Cedars of Lebanon Hospital ★	Los Angeles	Int Med., Ob-Gyn, Path, Ped., Rad, Surg
Children's Hospital ★	Los Angeles	Ortho Surg., Path., Ped
Hospital of the Good Samaritan ★	Los Angeles	Int. Med, Ob.-Gyn., Path, Rad, Surg.
Kaiser Foundation Hospital	Los Angeles	Ob-Gyn, Urol.
Los Angeles County Hospital ★	Los Angeles	Anes, Derm, Gen'l Pract, Int Med., Neur., Neuro Surg, Ob-Gyn, Op Ortho. Surg Otol Path, Ped, Phys Med, Psych, Pul Dis, R Surg., Urol
Los Angeles Eye and Ear Hospital	Los Angeles	Ophth
Orthopedic Hospital	Los Angeles	Ortho. Surg
Presbyterian Hospital-Olmsted Memorial ★	Los Angeles	Int Med., Mal. Dis., Ob-Gyn, Surg, Urol.
Queen of Angels Hospital ★	Los Angeles	Int. Med., Ob-Gyn, Path, Ped, Rad, Surg
St Vincent's Hospital	Los Angeles	Int. Med, Path, Surg
Santa Fe Coast Lines Hospital ★	Los Angeles	Surg.
Shriners Hospital for Crippled Children	Los Angeles	Ortho Surg
University of California Hospital ★	Los Angeles	Anes., Derm, Int. Med, Neur, Neuro Surg, Ob-Gyn, Ophth, Ortho Sur. Otol, Path, Ped, Plas Surg, Psych, Rad, Surg, Urol
Veterans Admin Hospital ★	Los Angeles	Anes, Card Dis, Derm Gastro., Int. Med., Neur, Neuro Surg, Op Ortho Surg, Otol Path., Phy Med, Plas Surg, Psych, Rad, S Thor Surg, Urol
White Memorial Hospital ★	Los Angeles	Anes, Derm, Int Med, Neur., Neuro Surg, Ob-Gyn, Ophth Or Surg, Otol, Path, Ped, Phys Med., Proct, Rad, Surg, Urol
Contra Costa County Hospital	Martinez, Calif	Gen'l Pract
Bret Harte Sanatorium	Murphys, Calif	Pul Dis
Metropolitan State Hospital	Norwalk, Calif	Psych
Children's Hospital of the East Bay	Oakland, Calif	Ortho Surg, Ped
Highland-Alameda County Hospital ★	Oakland, Calif	Anes, Int Med, Ob-Gyn., Ophth, Ortho Surg, Path, Ped, Rad S Thor Surg., Urol.
Kaiser Foundation Hospital ★	Oakland, Calif	Gen'l Pract., Int Med, Ob.-Gyn, Path, Ped, Surg
Samuel Merritt Hospital	Oakland, Calif	Anes, Ortho Surg, Path., Surg
U. S. Naval Hospital ★	Oakland Calif	Anes, Int. Med, Ob.-Gyn, Ophth., Ortho Surg, Otol, Path, Ped Psyc Rad, Surg, Urol.
Veterans Admin Hospital	Oakland, Calif	Neur, Path, Phy. Med
Veterans Admin Hospital	Palo Alto, Calif	Psych
Collis P. and Howard Huntington Memorial Hosp ★	Pasadena Calif	Int Med, Neuro Surg, Path, Surg
Patton State Hospital	Patton, Calif	Psych
Pacific State Hospital	Pomona, Calif	Psych
Sequoia Hospital	Redwood City, Calif	Path
Sacramento County Hospital ★	Sacramento, Calif	Gen'l Pract Path
Sutter General Hospital	Sacramento, Calif	Rad
Monterey County Hospital	Salinas, Calif.	Gen'l Pract
San Bernardino County Charity Hospital ★	San Bernardino, Calif	Int Med, Path., Surg
Mercy Hospital ★	San Diego, Calif	Int. Med, Ob-Gyn., Path, Surg
San Diego County General Hospital ★	San Diego, Calif	Int. Med., Ob.-Gyn., Ortho. Surg, Path., Ped., Pul Dis, Rad, Surg Ur
U. S. Naval Hospital ★	San Diego, Calif	Allergy, Anes, Derm, Gen'l Pract., Int. Med., Ob-Gyn, Ophth, Otol Pa Ped, Rad, Surg., Thor. Surg., Urol.
Children's Hospital ★	San Francisco	Int. Med, Ob-Gyn., Ortho. Surg, Otol, Ped, Rad, Surg.
Franklin Hospital ★	San Francisco	Int. Med, Ortho Surg, Path., Plas Surg., Urol
French Hospital ★	San Francisco	Int. Med, Path., Surg.
Kaiser Foundation Hospital ★	San Francisco	Allergy, Anes, Int. Med, Ob-Gyn, Path, Psych.
Langley Porter Clinic-Hospital	San Francisco	Psych
Letterman Army Hospital ★	San Francisco	Anes., Card. Dis, Derm., Gastro, Int. Med., Neuro, Ob-Gyn, Ophth, Or Surg., Path., Ped., Phys Med, Psych, Rad, Surg, Urol
Mary's Help Hospital ★	San Francisco	Int. Med, Ob.-Gyn., Surg.
Mount Zion Hospital ★	San Francisco	Anes., Int. Med., Path., Ped., Psych., Rad, Surg
St. Francis Memorial Hospital	San Francisco	Anes, Ob.-Gyn., Path., Plas. Surg, Rad.
St Joseph's Hospital	San Francisco	Anes, Int. Med., Ob-Gyn., Ortho. Surg., Surg.

★ Indicates hospitals approved for training interns

Name	Location	Approved Residencies
uke's Hospital ★	San Francisco	Int. Med., Ob.-Gyn , Path., Surg.
lary's Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Francisco Hospital ★		
anford University Service	San Francisco	Int. Med., Ob.-Gyn., Ortho. Surg., Otol., Path., Ped., Pul. Dis., Surg., Urol.
iversity of California Service	San Francisco	Int. Med., Ob.-Gyn., Ortho. Surg., Otol., Path., Ped., Pul. Dis., Surg., Urol.
ners Hospital for Crippled Children	San Francisco	Ortho. Surg.
hern Pacific General Hospital ★	San Francisco	Int. Med., Surg., Urol.
ford University Hospital ★	San Francisco	Anes., Derm., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Public Health Service Hospital ★	San Francisco	Int. Med., Surg.
ersity of California Hospital ★	San Francisco	Anes., Card. Dis., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phy. Med., Rad., Surg., Urol.
rans Admin. Hospital	San Francisco	Int. Med., Neur., Ophth., Ortho. Surg., Otol., Path., Surg., Urol.
nnor Hospital	San Jose, Calif.	Path.
ta Clara County Hospital ★	San Jose, Calif	Anes., Int. Med., Ob.-Gyn., Path., Ped., Pul. Dis., Rad., Surg., Urol.
mont Hospital of Alameda County	San Leandro, Calif	Pul. Dis.
munity Hospital of San Mateo County	San Mateo, Calif.	Int. Med., Path., Surg.
ta Barbara Cottage Hospital ★	Santa Barbara, Calif.	Int. Med., Path., Surg.
ta Barbara General Hospital	Santa Barbara, Calif.	Surg.
John's Hospital ★	Santa Monica, Calif.	Ob.-Gyn., Path., Ped., Surg.
oma County Hospital	Santa Rosa, Calif.	Gen'l Pract.
erans Admin. Hospital	Sepulveda, Calif.	Psych.
are-Kings Counties Joint Tuberculosis Hospital	Springville, Calif.	Pul. Dis.
bor General Hospital ★	Torrance, Calif.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
are County General Hospital	Tulare, Calif.	Gen'l Pract.
ser Foundation Hospital lifornia Rehabilitation Center)	Vallejo, Calif.	Phy. Med.
kner-Penrose Hospital ★	Colorado Springs, Colo.	Gen'l Pract., Path., Rad.
Francis Hospital	Colorado Springs, Colo.	Gen'l Pract.
ldren's Hospital	Denver	Ortho. Surg., Path., Ped., Surg.
simons Army Hospital ★	Denver	Anes., Card. Dis., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg.
eral Rose Memorial Hospital ★	Denver	Path., Rad.
ry Hospital ★	Denver	Int. Med., Path., Surg.
ional Jewish Hospital	Denver	Pul. Dis., Thor. Surg.
ter Sanitarium and Hospital ★	Denver	Path.
sbyterian Hospital ★	Denver	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Anthony Hospital ★	Denver	Path.
Joseph's Hospital ★	Denver	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Luke's Hospital ★	Denver	Int. Med., Path., Rad., Surg.
iversity of Colorado Medical Center		
olorado General Hospital ★	Denver	Anes., Derm., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg. Path., Ped., Phys. Med. Pul. Dis., Rad., Surg., Urol.
olorado Psychopathic Hospital	Denver	Psych.
enver General Hospital ★	Denver	Anes., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
terans Admin. Hospital	Denver	Anes., Int. Med., Neur., Neuro. Surg., Ortho. Surg., Path., Phys. Med., Psych., Rad., Surg., Urol.
ld County Hospital ★	Greeley, Colo.	Path.
lorado State Hospital	Pueblo, Colo.	Int. Med., Path., Surg.
idgeport Hospital ★	Bridgeport, Conn.	Anes., Gen'l Pract., Int. Med., Obst., Path., Rad., Surg.
Vincent's Hospital ★	Bridgeport, Conn.	Int. Med., Obst., Path., Rad., Surg.
nbury Hospital ★	Danbury, Conn.	Path.
eenwich Hospital ★	Greenwich, Conn.	Gen'l Pract., Int. Med., Path., Surg.
rtford Hospital ★	Hartford, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Rad., Surg.
rtford Municipal Hospital and Health Center ★	Hartford, Conn.	Int. Med., Surg.
stitute of Living	Hartford, Conn.	Psych.
Francis Hospital ★	Hartford, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Surg.
riden Hospital ★	Meriden, Conn.	Path., Surg.
nnecticut State Hospital	Middletown, Conn.	Psych.
ddlesex Hospital ★	Middletown, Conn.	Path.
w Britain General Hospital ★	New Britain, Conn.	Int. Med., Ob.-Gyn., Path., Surg.
ver Hill Foundation	New Canaan, Conn	Psych.
ace-New Haven Community Hospital ★	New Haven, Conn.	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
spital of St. Raphael ★	New Haven, Conn	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
darcrest Hospital	Newington, Conn.	Pul. Dis., Thor. Surg.
wington Home and Hospital for Crippled Children	Newington, Conn.	Ortho. Surg.
terans Admin. Hospital	Newington, Conn.	Int. Med., Path., Surg.
awrence and Memorial Hospitals ★	New London, Conn.	Int. Med., Ob.-Gyn., Surg.
irfield State Hospital	Newtown, Conn.	Psych.
orwalk Hospital ★	Norwalk, Conn.	Int. Med., Obst., Path., Surg.
orwich State Hospital	Norwich, Conn.	Psych.
orwich State Tuberculosis Sanatorium	Norwich, Conn.	Pul. Dis., Thor. Surg.
ate of Connecticut Vet. Home & Hospital	Rocky Hill, Conn.	Phy. Med.
aurel Heights State Tuberculosis Sanatorium	Shelton, Conn.	Pul. Dis.
amford Hospital ★	Stamford, Conn.	Path.
arlotte Hungerford Hospital	Torrington, Conn.	Gen'l Pract.
Mary's Hospital ★	Waterbury, Conn.	Int. Med., Path., Rad., Surg.
aterbury Hospital ★	Waterbury, Conn.	Int. Med., Path., Ped., Rad., Surg., Urol.
eterans Admin. Hospital	West Haven, Conn.	Card. Dis., Gastro., Int. Med., Neur., Path., Psych., Pul. Dis., Rad., Surg., Urol.
tate of Delaware	Dover, Del.	Pub. Health.
elaware State Hospital	Farnhurst, Del.	Psych.
lfred I. duPont Institute of Nemours Foundation	Wilmington, Del.	Ortho. Surg
elaware Hospital ★	Wilmington, Del.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
emorial Hospital ★	Wilmington, Del.	Int. Med., Path., Surg.
ilmington General Hospital ★	Wilmington, Del.	Gen'l Pract., Int. Med., Path.
rmed Forces Institute of Pathology	Washington, D. C.	Path.
rmy Medical Center ★ (Walter Reed Army Hospital)	Washington, D. C.	Allergy, Anes., Card. Dis., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
entral Dispensary and Emergency Hospital ★	Washington, D. C.	Int. Med., Ortho. Surg., Path., Rad., Surg.
hildren's Hospital	Washington, D. C.	Path., Ped.
olumbia Hospital for Women and Lying-In Asylum	Washington, D. C.	Ob.-Gyn.
istrict of Columbia General Hospital ★	Washington, D. C.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg. Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Urol.
octor's Hospital ★	Washington, D. C.	Anes., Ob.-Gyn., Path., Rad., Surg.
astern Dispensary and Casualty Hospital	Washington, D. C.	Gen'l Pract., Surg.
piscopal Eye, Ear, and Throat Hospital	Washington, D. C.	Ophth., Otol.
reedmen's Hospital ★	Washington, D. C.	Card. Dis., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
arfield Memorial Hospital ★	Washington, D. C.	Anes., Ob.-Gyn., Path., Rad., Surg.
eorgetown University Hospital ★	Washington, D. C.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Path., Ped., Phys. Med., Psych., Rad., Surg.
eorge Washington University Hospital ★	Washington, D. C.	Anes., Card. Dis., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Path. Phys. Med., Psych., Rad., Surg., Thor. Surg.
Providence Hospital ★	Washington, D. C.	Int. Med., Ob.-Gyn., Path., Surg.
St. Elizabeths Hospital ★	Washington, D. C.	Psych.
Sibley Memorial Hospital	Washington, D. C.	Path.

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* Indicates hospitals approved for training interns.

Name	Location	Approved Residencies
Tuberculosis Sanatorium (Glendale, Md)	Washington, D. C.	Pul Dis
Veterans Admin Hospital	Washington, D C	Int Med, Neur, Path, Rad, Surg, Urol
Veterans Admin Hospital	Coral Gables, Fla.	Int Med, Path, Surg
Halifax District Hospital	Daytona Beach, Fla	Gen'l Pract
Baptist Memorial Hospital ★	Jacksonville, Fla	Gen'l Pract, Path
Duval Medical Center ★	Jacksonville, Fla	Int Med, Ob-Gyn, Path, Ped, Psych, Surg, Urol
Hope Haven Hospital	Jacksonville, Fla	Ortho Surg
Riverside Hospital	Jacksonville, Fla	Int Med, Surg
St Luke's Hospital ★	Jacksonville, Fla	Gen'l Pract, Int Med, Ob-Gyn, Surg
St Vincent Hospital ★	Jacksonville, Fla	Gen'l Pract, Int Med, Ob-Gyn, Path, Ped, Surg, Urol
State of Florida	Jacksonville, Fla	Pub Health
Jackson Memorial Hospital ★	Miami, Fla	Anes, Card Dis, Derm, Int Med, Neur, Ob-Gyn, Ophth Ortho S, Path, Ped, Psych, Rad, Surg, Urol
Variety Children's Hospital	Miami, Fla	Ortho Surg, Ped
Mount Sinai Hospital of Greater Miami	Miami Beach, Fla	Int Med, Ob-Gyn, Path, Surg
St Francis Hospital ★	Miami Beach, Fla	Int Med, Ob-Gyn, Surg
Orange Memorial Hospital ★	Orlando, Fla	Int Med, Ob-Gyn, Ortho Surg Path, Surg, Urol
Baptist Hospital	Pensacola, Fla	Gen'l Pract
Sacred Heart Hospital ★	Pensacola, Fla	Gen'l Pract.
U S Navy School of Aviation Medicine	Pensacola, Fla	Aviat Med
American Legion Hospital for Crippled Children	St Petersburg, Fla	Ortho Surg
Mound Park Hospital ★	St Petersburg, Fla	Gen'l Pract, Int Med Ob Gyn, Surg
Tampa General Hospital ★	Tampa, Fla	Int Med, Ob-Gyn, Ortho Surg, Otol, Surg
Crawford W Long Memorial Hospital ★	Atlanta, Ga	Int Med, Ob-Gyn, Path, Ped, Rad, Surg
Georgia Baptist Hospital ★	Atlanta, Ga	Int Med, Ob Gyn, Ortho Surg, Path, Ped, Surg
Grady Memorial Hospital ★	Atlanta, Ga	Gen'l Pract, Int Med, Ob-Gyn, Ophth, Ortho Surg, Otol Path Pe Psych, Rad, Surg, Urol
Henrietta Egleston Hospital for Children	Atlanta, Ga	Ped
Piedmont Hospital ★	Atlanta, Ga	Int Med, Ob-Gyn, Rad, Surg
St Joseph's Infirmary ★	Atlanta, Ga	Card Dis, Int Med, Ob-Gyn, Path, Ped, Surg, Urol
Veterans Admin Hospital ★	Atlanta, Ga	Int Med, Ophth, Path, Rad, Surg, Urol
Eugene Talmadge Memorial Hospital	Augusta, Ga	Int Med, Ophth, Psych, Rad, Surg, Urol
University Hospital ★	Augusta, Ga	Anes, Int Med, Ob-Gyn, Ortho Surg Path, Ped Psych, Rad, S Thor Surg, Urol
Veterans Admin Hospital	Augusta, Ga	Int Med, Psych, Rad, Surg
The Medical Center ★	Columbus, Ga	Gen'l Pract
Scottish Rite Hospital for Crippled Children	Decatur, Ga	Ortho Surg
Emory University Hospital ★	Emory University, Ga	Anes, Int Med, Neuro Surg, Ortho Surg, Path, Phys Med, Rad S
U S Army Hospital	Fort Benning, Ga	Surg
Macon Hospital ★	Macon, Ga	Gen'l Pract
Memorial Hosp of Chatham County ★	Savannah, Ga	Int Med, Ob-Gyn, Path, Surg, Urol
Georgia Warm Springs Foundation	Warm Springs, Ga	Phys Med
St Joseph's Hospital	Alton, Ill	Gen'l Pract
MacNeal Memorial Hospital ★	Berwyn, Ill	Gen'l Pract, Surg
Alexian Brothers Hospital	Chicago	Path
American Hospital ★	Chicago	Path, Surg
Augustana Hospital ★	Chicago	Int Med, Obst, Path, Rad, Surg
Chicago Eye, Ear, Nose and Throat Hospital	Chicago	Ophth
Chicago Maternity Center	Chicago	Obst
Chicago State Hospital	Chicago	Psych
Chicago State Tuberculosis Sanitarium	Chicago	Pulm Dis, Thor. Surg
Chicago Wesley Memorial Hospital ★	Chicago	Anes, Int Med, Neur, Neuro Surg, Ob-Gyn, Ophth, Ortho Surg, O Path, Psych, Rad, Surg, Urol
Children's Memorial Hospital	Chicago	Card Dis, Ortho Surg, Path, Ped, Rad, Surg, Thor Surg
City of Chicago Dept of Welfare Convalescent Home	Chicago	Phy Med
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	Pul Dis, Thor Surg
Columbus Hospital ★	Chicago	Int Med
Cook County Hospital ★	Chicago	Con Dis, Derm, Gastro, Int Med, Neur, Ob-Gyn, Ophth Ortho S Otol, Path, Ped, Psych, Rad, Surg, Urol
Edgewater Hospital ★	Chicago	Path
Englewood Hospital ★	Chicago	Obst Path, Surg
Frank Cuneo Memorial Hospital	Chicago	Ob-Gyn
Grant Hospital ★	Chicago	Gen'l Pract, Int Med, Ob-Gyn, Path, Ped, Surg
Henrotin Hospital	Chicago	Surg
Hospital of St Anthony de Padua ★	Chicago	Obst, Surg
Illinois Central Hospital ★	Chicago	Int Med, Surg
Illinois Eye and Ear Infirmary	Chicago	Ophth, Otol
Illinois Masonic Hospital ★	Chicago	Gen'l Pract, Int Med, Ob-Gyn, Path, Ped, Rad, Surg
Lewis Memorial Maternity Hospital	Chicago	Ob-Gyn
Loretto Hospital ★	Chicago	Psych
Lutheran Deaconess Home and Hospital ★	Chicago	Obst
Mercy Hospital ★	Chicago	Int Med, Neuro Surg, Ob-Gyn, Path, Ped, Psych, Rad, Surg, Ur
Michael Reese Hospital ★	Chicago	Anes, Card Dis, Int Med, Mal Dis, Ob-Gyn, Ophth, Ortho Surg Path, Ped, Psych, Pul Dis Rad Surg Urol
Mount Sinai Hospital ★	Chicago	Anes, Card Dis, Int Med, Ob-Gyn, Path, Ped, Psych, Rad, Surg Ur
Northwestern University Medical Center	Chicago	Allergy, Derm, Neur, Neuro Surg, Phys Med, Psych
Norwegian American Hospital ★	Chicago	Int Med, Path, Surg
Passavant Memorial Hospital ★	Chicago	Int Med, Neuro Surg, Ob-Gyn, Ophth, Ortho Surg Path Red S
Presbyterian Hospital ★	Chicago	Int Med, Neuro Surg, Ob-Gyn Ophth, Otol, Path Ped, Psych Ra Surg, Urol
Provident Hospital ★	Chicago	Int. Med, Ob-Gyn, Ped, Rad, Surg
Ravenswood Hospital ★	Chicago	Int Med Ob-Gyn, Path, Surg
St Anne's Hospital	Chicago	Obst, Path, Surg
St Elizabeth Hospital ★	Chicago	Ob-Gyn, Ortho Surg
St Joseph Hospital ★	Chicago	Int Med, Ob-Gyn, Path, Surg
St Luke's Hospital ★	Chicago	Anes, Int Med, Neur., Neuro Surg, Ob-Gyn, Ophth Ortho Surg, Pa Ped, Plas Surg, Psych, Rad, Surg, Urol
St Mary of Nazareth Hospital ★	Chicago	Gen'l Pract, Int Med, Path, Surg
Shriners Hospital for Crippled Children	Chicago	Ortho Surg
South Shore Hospital ★	Chicago	Gen'l Pract
Swedish Covenant Hospital ★	Chicago	Obst
University of Chicago Clinics ★	Chicago	Anes, Derm, Int Med, Neur, Neuro Surg, Ob-Gyn Ophth, Ortho S Otol, Path, Ped, Psych, Rad, Surg, Urol
University of Illinois Neuropsychiatric Institute	Chicago	Neur, Neuro Surg, Psych
University of Illinois Research and Educational Hospitals ★	Chicago	Allergy, Anes, Derm Int Med, Neur, Neuro Surg, Ob-Gyn, Or Ortho Surg, Otol, Path, Ped, Plas Surg, Psych, Rad, Surg Urol
Veterans Admin Research Hospital	Chicago	Gastro, Int Med, Neuro Surg, Ophth, Ortho Surg, Otol, Path, P Med, Rad, Surg, Thor Surg, Urol
Veterans Admin (West Side) Hospital	Chicago	Int Med, Path, Psych, Surg
Woodlawn Hospital ★	Chicago	Int Med, Surg
Decatur and Macon County Hospital ★	Decatur, Ill	Gen'l Pract
Veterans Admin Hospital	Downey, Ill	Psych
Elgin State Hospital	Elgin, Ill	Psych
Evanston Hospital ★	Evanston, Ill	Anes, Int Med, Ob-Gyn, Ortho Surg, Path, Ped Rad, Surg
St Francis Hospital ★	Evanston, Ill	Int Med, Ob-Gyn, Ortho Surg, Path, Ped, Rad, Surg
Little Company of Mary Hospital ★	Evergreen Park, Ill	Ob-Gyn, Ped, Rad, Surg
Galesburg State Research Hospital	Galesburg, Ill	Psych
U S Naval Hospital ★	Great Lakes, Ill	Int Med, Ob-Gyn, Surg
Veterans Admin Hospital	Hines, Ill	Anes, Derm., Int Med, Neur, Ophth, Ortho Surg, Otol, Path P Surg, Psych, Rad, Surg, Thor Surg, Urol
St Joseph's Hospital	Joliet, Ill	Anes

★ Indicates hospitals approved for training interns

Name	Location	Approved Residencies
West Suburban Hospital ★	Oak Park, Ill.	Ob.-Gyn., Ortho. Surg.
Institute of Physical Medicine & Rehabilitation	Peoria, Ill.	Phy. Med.
Methodist Hospital of Central Illinois ★	Peoria, Ill.	Gen'l Pract., Obst., Path., Surg.
Peoria Municipal Tuberculosis Sanitarium	Peoria, Ill.	Pul. Dis.
St. Francis Hospital ★	Peoria, Ill.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
U. S. Air Force Hospital	Rantoul, Ill.	Surg.
Rockford Memorial Hospital ★	Rockford, Ill.	Path.
St. Anthony's Hospital ★	Rockford, Ill.	Ob.-Gyn., Path., Surg
State of Illinois	Springfield, Ill.	Pub. Health
Carle Memorial Hospital	Urbana, Ill.	Rad.
Lake County Tuberculosis Sanatorium	Waukegan, Ill.	Pul. Dis.
North Shore Health Resort	Winnetka, Ill.	Psych.
St. Francis Hospital	Beech Grove, Ind.	Gen'l Pract.
Clinic Hospital	Bluffton, Ind.	Int. Med., Rad., Surg
St. Joseph's Hospital ★	Fort Wayne, Ind.	Path.
Methodist Hospital ★	Gary, Ind.	Gen'l Pract., Path.
St. Margaret Hospital ★	Hammond, Ind.	Gen'l Pract.
Central State Hospital	Indianapolis	Psych.
Indianapolis General Hospital ★	Indianapolis	Anes., Card. Dis., Derm., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Indiana University Medical Center ★	Indianapolis	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Methodist Hospital ★	Indianapolis	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
St. Vincent's Hospital ★	Indianapolis	Card. Dis., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg.
Sunnyside Sanatorium	Indianapolis	Pul. Dis.
Veterans Admin. Hospital	Indianapolis	Int. Med., Neuro. Surg., Ortho. Surg., Path., Psych., Rad., Surg.
St. Elizabeth Hospital ★	Lafayette, Ind.	Int. Med., Ob.-Gyn., Path.
Logansport State Hospital	Logansport, Ind.	Psych.
Ball Memorial Hospital ★	Muncie, Ind.	Path., Surg.
Healthwin Hospital	South Bend, Ind.	Pul. Dis.
Memorial Hospital ★	South Bend, Ind.	Anes., Gen'l Pract., Path.
South Bend Medical Foundation	South Bend, Ind.	Path.
Dr. Norman M. Beatty Memorial Hospital	Westville, Ind.	Psych.
St. Luke's Methodist Hospital ★	Cedar Rapids, Iowa	Gen'l Pract., Path.
Mental Health Institute	Cherokee, Iowa	Psych.
Broadlawns—Polk County Hospital★	Des Moines, Iowa	Gen'l Pract., Surg.
Iowa Methodist Hospital ★	Des Moines, Iowa	Int. Med., Path., Ped., Rad., Surg.
Mercy Hospital ★	Des Moines, Iowa	Path.
Veterans Admin. Hospital	Des Moines, Iowa	Anes., Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Iowa State Psychopathic Hospital	Iowa City	Psych.
Mercy Hospital ★	Iowa City	Ortho. Surg., Surg.
State University of Iowa Hospitals ★	Iowa City	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Iowa City	Anes., Int. Med., Neur., Otol., Path., Rad., Surg.
St. Margaret Hospital ★	Kansas City, Kan.	Surg.
University of Kansas Medical Center ★	Kansas City, Kan.	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
C. F. Menninger Memorial Hospital	Topeka, Kan.	Psych.
State of Kansas	Topeka, Kan.	Pub. Health
Topeka State Hospital	Topeka, Kan.	Psych.
Veterans Admin. Hospital	Topeka, Kan.	Int. Med., Neur., Psych.
Veterans Admin. Hospital	Wadsworth, Kan.	Ortho. Surg., Rad., Surg., Urol.
St. Francis Hospital ★	Wichita, Kan.	Gen'l Pract., Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Veterans Admin. Hospital	Wichita, Kan.	Surg.
Wesley Hospital ★	Wichita, Kan.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Wichita—St. Joseph Hospital ★	Wichita, Kan.	Path.
St. Elizabeth Hospital ★	Covington, Ky.	Path
William Booth Memorial Hospital	Covington, Ky.	Gen'l Pract.
U. S. Army Hospital	Fort Campbell, Ky.	Surg.
U. S. Army Hospital	Fort Knox, Ky.	Gen'l Pract., Surg.
Central State Hospital	Lakeland, Ky.	Psych.
Good Samaritan Hospital ★	Lexington, Ky.	Int. Med., Ortho. Surg., Surg.
St. Joseph Hospital ★	Lexington, Ky.	Int. Med., Ob.-Gyn., Ortho. Surg., Surg., Urol.
Shriners Hospital for Crippled Children	Lexington, Ky.	Ortho. Surg.
U. S. Public Health Service Hospital	Lexington, Ky.	Psych.
Veterans Admin. Hospital	Lexington, Ky.	Psych.
Children's Hospital	Louisville, Ky.	Path., Ped.
Kosair Crippled Children's Hospital	Louisville, Ky.	Ortho. Surg.
Louisville General Hospital ★	Louisville, Ky	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., O Path., Ped., Psych., Rad., Surg., Urol.
Norton Memorial Infirmary ★	Louisville, Ky.	Psych.
St. Anthony's Hospital ★	Louisville, Ky.	Gen'l Pract.
St. Joseph's Infirmary ★	Louisville, Ky.	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Veterans Admin. Hospital	Louisville, Ky.	Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Psych., Rad., Surg., Urol.
Lafayette Charity Hospital	Lafayette, La.	Gen'l Pract., Surg.
St. Patrick's Hospital	Lake Charles, La.	Gen'l Pract.
Charity Hospital of Louisiana ★	New Orleans	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Eye, Ear, Nose and Throat Hospital	New Orleans	Ophth., Otol.
Hotel Dieu ★	New Orleans	Ob.-Gyn., Path., Ped., Rad., Surg.
Ochsner Foundation Hospital ★	New Orleans	Anes., Gastro., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Proct., Rad., Surg., Urol.
Southern Baptist Hospital ★	New Orleans	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Touro Infirmary ★	New Orleans	Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Rad., Surg., Urol.
U. S. Public Health Service Hospital ★	New Orleans	Int. Med., Ophth., Path., Rad., Surg.
Veterans Admin. Hospital	New Orleans	Int. Med., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Huey P. Long Charity Hospital	Pineville, La	Gen'l Pract.
Confederate Memorial Hospital ★	Shreveport, La.	Int. Med. Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Shriners Hospital for Crippled Children	Shreveport, La.	Ortho. Surg
Eastern Maine General Hospital ★	Bangor, Maine	Anes., Path. Rad.
Central Maine Sanatorium	Fairfield, Maine	Pul. Dis.
Central Maine General Hospital ★	Lewiston, Maine	Anes., Int. Med., Path., Ped., Rad., Surg.
Maine Medical Center ★	Portland, Maine	Anes., Int. Med., Path., Rad., Surg.
Baltimore City Hospitals ★	Baltimore	Anes., Int. Med., Neur., Ob.-Gyn., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg.
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore	Ophth., Otol.
Bon Secours Hospital ★	Baltimore	Gen'l Pract., Ob.-Gyn., Surg.
Children's Hospital School	Baltimore	Ortho. Surg.
Church Home and Hospital ★	Baltimore	Int. Med., Obst., Surg.
Doctors Hospital	Baltimore	Gen'l Pract.
Franklin Square Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.
Hospital for Women ★	Baltimore	Ob.-Gyn., Path.
James Lawrence Kernan Hospital for Crippled Children	Baltimore	Ortho. Surg.
Johns Hopkins Hospital ★	Baltimore	Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Lutheran Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.
Maryland General Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.

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Mercy Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Otol., Path., Ped., Rad., Surg.
Provident Hospital and Free Dispensary ★	Baltimore	Int. Med., Obst., Surg.
St. Agnes Hospital ★	Baltimore	Int. Med., Ob.-Gyn.
St. Joseph's Hospital ★	Baltimore	Ob.-Gyn., Surg.
Seton Institute	Baltimore	Psych.
Sinai Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
South Baltimore General Hospital ★	Baltimore	Int. Med., Obst., Otol., Surg.
State of Maryland	Baltimore	Pub. Health
Union Memorial Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Ped., Surg.
U. S. Public Health Service Hospital ★	Baltimore	Int. Med., Ophth., Path., Rad., Surg.
University Hospital ★	Baltimore	Anes., Derm , Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
National Institutes of Health—Clinical Center	Bethesda, Md.	Int. Med., Neuro., Path., Psych., Rad.
Suburban Hospital ★	Bethesda, Md.	Gen'l Pract.
U. S. Naval Hospital ★	Bethesda, Md.	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Spring Grove State Hospital	Catonsville, Md.	Psych.
Prince George's General Hospital ★	Cheverly, Md.	Int. Med., Ob.-Gyn., Path., Surg.
Crownsville State Hospital	Crownsville, Md.	Psych.
Veterans Admin. Hospital	Fort Howard, Md.	Derm., Int. Med., Ophth., Surg., Urol.
Washington County Hospital ★	Hagerstown, Md.	Rad.
Veterans Admin. Hospital	Perry Point, Md.	Int. Med., Psych., Surg.
Chestnut Lodge Sanitarium	Rockville, Md.	Psych.
Springfield State Hospital	Sykesville, Md.	Psych.
Sheppard and Enoch Pratt Hospital	Towson, Md.	Psych.
Veterans Admin. Hospital	Bedford, Mass.	Psych.
Beverly Hospital ★	Beverly, Mass.	Path., Surg.
Beth Israel Hospital ★	Boston	Card. Dis., Gastro., Int. Med., Obst., Otol., Path., Psych., Rad., Surg., Urol.
Boston City Hospital ★	Boston	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Boston Floating Hospital	Boston	Ped.
Boston Lying-In Hospital	Boston	Obst., Path.
Boston Sanatorium	Boston	Pul. Dis., Thor. Surg.
Boston State Hospital	Boston	Psych.
Carney Hospital ★	Boston	Int. Med., Ob -Gyn., Path., Surg.
Children's Medical Center ★	Boston	Neuro. Surg , Ortho. Surg., Path., Ped., Surg.
Faulkner Hospital	Boston	Int. Med., Path., Rad.
Lahey Clinic	Boston	Anes., Gastro., Int. Med., Neuro. Surg., Ortho. Surg., Rad.
Lemuel Shattuck Hospital	Boston	Int. Med., Path., Rad.
Massachusetts Eye and Ear Infirmary	Boston	Ophth., Otol.
Massachusetts General Hospital ★	Boston	Allergy, Anes., Derm., Int. Med., Neur., Neuro. Surg., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Massachusetts Memorial Hospitals ★	Boston	Anes., Con. Dis., Derm., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Psych., Rad., Surg., Urol.
Massachusetts Mental Health Center	Boston	Psych.
New England Center Hospital ★	Boston	Anes., Int. Med., Neur., Neuro. Surg., Path., Psych., Rad., Surg., Urol.
New England Deaconess Hospital	Boston	Anes., Int. Med., Path., Rad., Thor. Surg.
New England Hospital ★	Boston	Anes., Gen'l Pract., Obst., Surg.
Peter Bent Brigham Hospital ★	Boston	Anes., Card. Dis., Int. Med., Neuro. Surg., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
St. Elizabeth Hospital ★	Boston	Anes., Int. Med., Ob.-Gyn., Path., Psych., Surg.
St. Margaret's Hospital	Boston	Ob.-Gyn.
U. S. Public Health Service Hospital ★	Boston	Int. Med., Surg.
Veterans Admin. Hospital	Boston (Jamaica Plain)	Anes., Int. Med., Neur., Neuro. Surg., Ortho. Surg., Otol., Path., Phys. Med., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Boston (West Roxbury)	Path., Rad., Urol.
Veterans Admin. Hospital	Brockton, Mass.	Psych.
Booth Memorial Hospital and Home	Brookline, Mass.	Obst.
Free Hospital for Women	Brookline, Mass.	Gyn.
Cambridge City Hospital ★	Cambridge, Mass.	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Cambridge Sanitarium	Cambridge, Mass.	Pul. Dis.
Mount Auburn Hospital ★	Cambridge, Mass.	Anes., Int. Med., Path., Rad., Surg.
Massachusetts Hospital School	Canton, Mass.	Ortho. Surg.
Lawrence F. Quigley Memorial Hospital	Chelsea, Mass.	Int. Med., Surg.
U. S. Naval Hospital ★	Chelsea, Mass.	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Rad., Surg.
St. Anne's Hospital	Fall River, Mass.	Gen'l Pract. Ob.-Gyn.
Truesdale Hospital ★	Fall River, Mass.	Int. Med., Path., Surg.
Burbank Hospital	Fitchburg, Mass.	Path., Surg.
Foxboro State Hospital	Foxboro, Mass.	Psych.
Lawrence General Hospital ★	Lawrence, Mass.	Path.
Lowell General Hospital ★	Lowell, Mass.	Path.
Lynn Hospital ★	Lynn, Mass.	Int. Med., Ortho. Surg., Path., Surg.
Malden Hospital	Malden, Mass.	Int. Med., Path., Surg.
Medfield State Hospital	Medfield, Mass.	Psych.
St. Luke's Hospital ★	New Bedford, Mass.	Path.
Newton-Wellesley Hospital ★	Newton, Mass.	Int. Med., Path., Surg.
Cooley Dickenson Hospital	Northampton, Mass.	Gen'l Pract.
Quincy City Hospital ★	Quincy, Mass.	Int. Med., Ob. Gyn., Path., Surg.
Veterans Admin. Hospital	Rutland Heights, Mass.	Pul. Dis., Thor. Surg.
Salem Hospital ★	Salem, Mass.	Int. Med., Path.
Shriners Hospital for Crippled Children	Springfield, Mass.	Ortho. Surg.
Springfield Hospital ★	Springfield, Mass.	Anes., Path., Surg.
Austen Riggs Foundation	Stockbridge, Mass.	Psych.
Taunton State Hospital	Taunton, Mass.	Psych.
Pondville Hospital	Walpole, Mass.	Int. Med., Path., Surg.
Metropolitan State Hospital	Waltham, Mass.	Psych.
Middlesex County Sanatorium	Waltham, Mass.	Pul. Dis.
McLean Hospital	Waverly, Mass.	Psych.
Westboro State Hospital	Westboro, Mass.	Psych
Westfield State Sanatorium	Westfield, Mass.	Pul. Dis., Surg.
Memorial Hospital ★	Worcester, Mass.	Int. Med., Path., Surg.
St. Vincent's Hospital ★	Worcester, Mass.	Anes., Int. Med., Path., Surg.
Worcester City Hospital ★	Worcester, Mass.	Anes., Int. Med., Ortho. Surg., Path., Ped., Surg.
Worcester State Hospital	Worcester, Mass.	Psych.
St. Joseph Mercy Hospital ★	Ann Arbor, Mich.	Int. Med., Ob.-Gyn., Plas. Surg., Rad., Surg.
University Hospital ★	Ann Arbor, Mich.	Allergy, Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg. Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Leila Y. Post Montgomery Hospital ★	Battle Creek, Mich.	Path., Rad., Surg.
Oakwood Hospital ★	Dearborn, Mich.	Gen'l Pract., Ob.-Gyn., Path.
Veterans Admin. Hospital	Dearborn, Mich.	Int. Med., Path., Rad., Surg.
Alexander Blain Hospital	Detroit	Int. Med., Surg.
Brent General Hospital	Detroit	Gen'l Pract.
Children's Hospital	Detroit	Ortho. Surg., Path., Ped.
Crittenton General Hospital	Detroit	Ob.-Gyn.
Detroit Memorial Hospital ★	Detroit	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Evangelical Deaconess Hospital ★	Detroit	Gen'l Pract., Int. Med., Ob.-Gyn., Surg.
Grace Hospital ★	Detroit	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg., Urol.
Harper Hospital ★	Detroit	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.

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Henry Ford Hospital ★	Detroit	Anes., Card. Dis., Derm., Gastro., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Herman Kiefer Hospital	Detroit	Con. Dis., Ob.-Gyn., Path., Pul. Dis., Rad., Thor. Surg.
Jennings Memorial Hospital	Detroit	Int. Med., Surg.
Lafayette Clinic	Detroit	Psych.
Lynn Hospital	Detroit	Gen'l Pract.
Mount Carmel *Mercy Hospital* ★	*Detroit*	*Int. Med., Ob.-Gyn., Path., Rad., Surg.*
North Detroit General Hospital	Detroit	Gen'l Pract.
Providence Hospital ★	Detroit	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Receiving Hospital ★	Detroit	Anes., Derm., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Psych., Rad., Surg., Urol.
St. John Hospital ★	Detroit	Int. Med., Ob.-Gyn., Surg.
St. Joseph Mercy Hospital ★	Detroit	Int. Med., Ob.-Gyn., Surg.
Sinai Hospital ★	Detroit	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Woman's *Hospital* ★	*Detroit*	*Int. Med., Ob.-Gyn., Path., Surg.*
Wayne County General Hospital and Infirmary ★	Eloise, Mich.	Int. Med., Path., Psych., Rad., Surg., Urol.
Hurley Hospital ★	Flint, Mich.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
McLaren General Hospital ★	Flint, Mich.	Gen'l Pract., Int. Med., Path., Surg.
St. Joseph Hospital ★	Flint, Mich.	Gen'l Pract., Path., Rad.
Blodgett Memorial Hospital ★	Grand Rapids, Mich.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Butterworth Hospital ★	Grand Rapids, Mich.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Ferguson-Droste-Ferguson Hospital	Grand Rapids, Mich.	Proct.
St. Mary's *Hospital* ★	*Grand Rapids*, Mich.	*Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg.*
Bon Secours Hospital ★	Grosse Pointe, Mich.	Int. Med., Surg.
Highland Park General Hospital ★	Highland Park, Mich.	Int. Med., Ob.-Gyn., Surg.
Michigan State Sanatorium	Howell, Mich.	Pul. Dis.
W. A. Foote Memorial Hospital	Jackson, Mich.	Path.
Borgess Hospital ★	Kalamazoo, Mich.	Gen'l Pract., Ob.-Gyn., Ortho. Surg., Path., Surg.
Bronson Methodist Hospital ★	Kalamazoo, Mich.	Int. Med., Surg.
Edward W. Sparrow Hospital ★	Lansing, Mich.	Int. Med., Path., Surg.
Ingham Chest Hospital	Lansing, *Mich.*	*Thor. Surg.*
St. Lawrence Hospital ★	Lansing, Mich.	Int. Med.
State of Michigan	Lansing, Mich.	Pub. Health
Northville State Hospital	Northville, Mich.	Psych.
Pontiac General Hospital ★	Pontiac, Mich.	Int. Med., Ob.-Gyn., Path., Surg.
Pontiac State Hospital	Pontiac, Mich.	Psych.
St. Joseph Mercy Hospital ★	Pontiac, Mich.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
William Beaumont Hospital ★	Royal Oak, Mich.	Int. Med., Ob.-Gyn.
Saginaw *General Hospital* ★	Saginaw, *Mich.*	*Int. Med., Ob.-Gyn., Path., Ped., Surg.*
St. Luke's Hospital ★	Saginaw, Mich.	Gen'l Pract.
St. Mary's Hospital ★	Saginaw, Mich.	Gen'l Pract.
Traverse City State Hospital	Traverse City, Mich.	Psych.
Wyandotte General Hospital	Wyandotte, Mich.	Gen'l Pract.
Ypsilanti State Hospital	Ypsilanti, Mich.	Psych
St. Luke's Hospital ★	Duluth, Minn	Path.
St. Mary's Hospital ★	Duluth, Minn.	Path.
Asbury Methodist *Hospital* ★	Minneapolis	*Int. Med.*
Fairview Hospital	Minneapolis	Gen'l Pract
Lutheran Deaconess Home and Hospital	Minneapolis	Gen'l Pract.
Minneapolis General Hospital ★	Minneapolis	Derm., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Surg., Urol.
Mount Sinai Hospital ★	Minneapolis	Int. Med., Surg.
Northwestern Hospital ★	Minneapolis	Int. Med., Ob.-Gyn., Path., Ped.
St. Barnabas Hospital ★	Minneapolis	Ob.-Gyn., Path., Surg.
St. Mary's Hospital ★	Minneapolis	Ob.-Gyn., Urol.
Shriners Hospital *for Crippled Children*	*Minneapolis*	*Ortho. Surg.*
State of Minnesota	Minneapolis	Pub. Health
Swedish Hospital ★	Minneapolis	Path., Rad., Surg.
University of Minnesota Hospitals ★	Minneapolis	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Phys. Med., Proct., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Minneapolis	Derm., Int. Med., Neur., Ophth., Ortho. Surg., Otol., Path., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Nopeming Sanatorium	Nopeming, Minn	Pul. Dis.
Glen Lake Sanatorium	*Oak Terrace*, Minn	*Pul. Dis.*
Mayo Foundation	Rochester, Minn.	Allergy, Anes., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Plas. Surg., Proct., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Ancker Hospital ★	St. Paul, Minn.	Derm., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Surg., Urol.
Charles T. Miller Hospital ★	St. Paul, Minn.	Int. Med., Ob.-Gyn., Ophth., Path., Rad., Surg., Urol.
Gillette State Hospital for Crippled Children	St. Paul, Minn	Ortho. Surg.
Midway Hospital	St. Paul, Minn.	Gen'l Pract.
St. Joseph's Hospital ★	St. Paul, Minn	Ob.-Gyn., Path.
Veterans Admin. Hospital	Biloxi, Miss.	Psych
Mississippi Baptist Hospital ★	Jackson, Miss	Gen'l Pract., Ortho. Surg., Path.
University Hospital ★	Jackson, Miss.	Anes., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Orth. Surg., Path., Ped., Proct., Psych. Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Jackson, Miss.	Ortho. Surg., Urol.
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss.	Pul. Dis., Thor. Surg.
Mercy Hospital-Street Memorial ★	Vicksburg, Miss.	Gen'l Pract., Surg.
Vicksburg Hospital	Vicksburg, Miss.	Surg.
Mississippi State Hospital	Whitfield, Miss	Psych.
St. Louis County Hospital ★	Clayton, Mo.	Int. Med., Ob.-Gyn., Path., Surg.
Ellis Fischel Cancer Hospital	Columbia, Mo.	Mal. Dis., Surg.
University Hospitals	Columbia, Mo.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Children's Mercy Hospital	Kansas City, Mo.	Ortho. Surg., Ped.
Kansas City General Hospital No. 1 ★	Kansas City, Mo	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Surg., Urol.
Kansas City General Hospital No. 2	Kansas City, Mo	Ob.-Gyn., Rad., Surg.
Menorah Hospital Medical Center ★	Kansas City, Mo.	Gen'l Pract., Int. Med., Path., Rad., Surg.
Research Hospital ★	Kansas City, Mo	Path., Rad.
St. Joseph Hospital ★	Kansas City, Mo.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Luke's Hospital ★	Kansas City, Mo.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
St. Mary's Hospital ★	Kansas City, Mo.	Path., Surg.
Veterans Admin. Hospital	Kansas City, Mo	Anes., Int. Med., Neur., Ortho. Surg., Otol., Path., Phys. Med., Psych., Rad., Surg., Urol.
Robert Koch Hospital	Koch, Mo.	Pul. Dis.
Missouri State Sanatorium	Mount Vernon, Mo.	Thor. Surg.
Missouri Methodist Hospital ★	St. Joseph, Mo.	Gen'l Pract., Surg.
Barnes Hospital ★	St. Louis	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
De Paul Hospital ★	St. Louis	Gen'l Pract., Int. Med., Ob.-Gyn., Path.
Evangelical Deaconess Hospital ★	St. Louis	Gen'l Pract.
Homer G. Phillips Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Jewish Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Lutheran Hospital ★	St. Louis	Gen'l Pract.
Missouri Baptist Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Path., Surg.
Missouri Pacific Hospital	St. Louis	Int. Med., Surg., Urol.
St. Anthony's Hospital ★	St. Louis	Gen'l Pract., Surg.
St. John's Hospital ★	St. Louis	Anes., Int. Med., Obst., Path., Surg.
St. Louis Children's Hospital ★	St. Louis	Ped.

★ Indicates hospitals approved for training interns.

Name	Location	Approved Residencies
Mother Cabrini Memorial Hospital ★	New York City	Surg.
Mount Sinai Hospital ★	New York City	Anes., Cardio. Dis., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
New York Eye and Ear Infirmary	New York City	Ophth., Otol.
New York Hospital ★	New York City	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
New York Infirmary ★	New York City	Int. Med., Ob.-Gyn., Ped., Surg.
New York Polyclinic Medical School and Hospital ★	New York City	Anes., Derm., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
New York State Psychiatric Institute and Hospital	New York City	Psych.
New York University-Bellevue Medical Center		
University Hospital	New York City	Derm., Int. Med., Gyn., Path., Ped., Psych., Rad.
Presbyterian Hospital ★	New York City	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Plas. Surg., Rad., Surg., Urol.
Roosevelt Hospital ★	New York City	Allergy, Int. Med., Gyn., Otol., Path., Ped., Psych., Rad., Surg., Urol.
St. Barnabas Hospital for Chronic Diseases	New York City	Int. Med., Path.
St. Clare's Hospital ★	New York City	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
St. Francis Hospital ★	New York City	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Joseph Hospital for Chest Diseases	New York City	Pul. Dis., Thor. Surg.
St. Luke's Hospital ★	New York City	Anes., Card. Dis., Derm., Int. Med., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
St. Vincent's Hospital ★	New York City	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
Sydenham Hospital ★	New York City	Int. Med., Ob.-Gyn., Surg.
Veterans Admin. Hospital	New York City (Bronx)	Derm., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	New York City (Manhattan)	Derm., Int. Med., Neur., Ophth., Ortho. Surg., Path., Phys. Med., Psych., Surg., Urol.
Woman's Hospital	New York City	Ob.-Gyn.
St. Lawrence State Hospital	Ogdensburg, N. Y.	Psych.
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.	Pul. Dis., Thor. Surg.
Rockland State Hospital	Orangeburg, N. Y.	Psych.
Stony Lodge Sanitarium	Ossining, N. Y.	Psych.
High Point Hospital	Port Chester, N. Y.	Psych.
United Hospital ★	Port Chester, N. Y.	Int. Med., Obst., Path., Surg.
St. Charles Hospital	Port Jefferson, N. Y.	Ortho. Surg.
Hudson River State Hospital	Poughkeepsie, N. Y.	Psych.
Vassar Brothers Hospital	Poughkeepsie, N. Y.	Path.
Creedmoor State Hospital	Queens Village, N. Y.	Psych
Raybrook State Tuberculosis Hospital	Raybrook, N. Y.	Pul. Dis., Thor. Surg.
Astor Home for Children	Rhinebeck, N. Y.	Psych.
Genesee Hospital ★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Highland Hospital ★	Rochester, N. Y.	Int. Med., Ob.-Gyn., Surg.
Iola-Monroe County Tuberculosis Sanatorium	Rochester, N. Y.	Pul. Dis.
Rochester General Hospital ★	Rochester, N. Y.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Rochester State Hospital	Rochester, N. Y.	Psych.
St. Mary's Hospital ★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg.
Strong Memorial-Rochester Municipal Hospital ★	Rochester, N. Y.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
University of Rochester School of Medicine and Dentistry	Rochester, N. Y.	Occ. Med.
St. Francis Sanatorium for Cardiac Children	Roslyn, L. I., N. Y.	Card. Dis.
U. S. Naval Hospital ★	St. Albans, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Path., Rad., Surg., Thor. Surg., Urol.
Ellis Hospital ★	Schenectady, N. Y.	Anes., Int. Med., Ob-Gyn., Ortho. Surg., Path., Psych., Surg.
Glenridge Sanatorium	Schenectady, N. Y.	Pul. Dis.
U. S. Public Health Service Hospital ★	Stapleton (Staten Island), N. Y.	Anes., Derm., Int. Med., Ophth., Path., Psych., Rad., Surg., Urol.
St. Vincent's Hospital ★	Staten Island, N. Y.	Ortho. Surg., Path.
Sea View Hospital	Staten Island, N. Y.	Ortho. Surg., Ped., Pul. Dis., Thor. Surg.
Staten Island Hospital ★	Staten Island, N. Y.	Int. Med., Path.
Veterans Admin. Hospital	Sunmount, N. Y.	Pul. Dis., Thor. Surg.
General Hospital ★	Syracuse, N. Y.	Ob.-Gyn.
St. Joseph's Hospital ★	Syracuse, N. Y.	Anes., Ob.-Gyn., Path.
State University of New York Medical Center ★	Syracuse, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Syracuse Psychopathic Hospital	Syracuse, N. Y.	Psych.
Veterans Admin. Hospital	Syracuse, N. Y.	Path., Surg.
Letchworth Village	Thiells, N. Y.	Psych.
Samaritan Hospital ★	Troy, N. Y.	Path.
Broadacres Sanatorium	Utica, N. Y.	Pul. Dis.
Utica State Hospital	Utica, N. Y	Path., Psych.
Grasslands Hospital ★	Valhalla, N. Y.	Anes., Int. Med., Ophth., Path., Ped., Psych., Pul. Dis., Rad., Surg.
Pilgrim State Hospital	West Brentwood, N. Y.	Psych.
Rehabilitation Hospital	West Haverstraw, N. Y.	Ortho. Surg.
New York Hospital-Westchester Division	White Plains, N. Y.	Psych.
White Plains Hospital ★	White Plains, N. Y.	Int. Med., Surg.
Willard State Hospital	Willard, N. Y.	Psych.
Harlem Valley State Hospital	Wingdale, N. Y.	Psych.
St. John's Riverside Hospital ★	Yonkers, N. Y.	Path.
North Carolina Memorial Hospital ★	Chapel Hill, N. C.	Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Charlotte Memorial Hospital ★	Charlotte, N. C.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Surg., Thor. Surg., Urol.
Mercy Hospital	Charlotte, N. C.	Gen'l Pract.
Presbyterian Hospital	Charlotte, N. C.	Path.
Duke Hospital ★	Durham, N. C.	Allergy, Anes., Card. Dis., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Lincoln Hospital ★	Durham, N. C.	Ob.-Gyn., Surg.
McPherson Hospital	Durham, N. C.	Ophth., Otol.
Veterans Admin. Hospital	Durham, N. C.	Int. Med., Path., Plas. Surg., Psych., Rad., Surg., Urol.
Watts Hospital ★	Durham, N. C.	Int. Med., Ob.-Gyn., Path., Ped., Urol.
U. S. Army Hospital	Fort Bragg, N. C.	Surg.
North Carolina Orthopedic Hospital	Gastonia, N. C.	Ortho. Surg.
Moses H. Cone Memorial Hospital ★	Greensboro, N. C.	Path.
North Carolina Sanatorium for Treatment of Tuberculosis	McCain, N. C.	Pul. Dis.
Veterans Admin. Hospital	Oteen, N. C.	Path., Pul. Dis., Thor. Surg.
Rex Hospital ★	Raleigh, N. C.	Int. Med., Ob.-Gyn., Ped., Surg.
St. Agnes Hospital	Raleigh, N. C.	Ob.-Gyn., Surg.
State Hospital	Raleigh, N. C.	Psych.
State of North Carolina	Raleigh, N. C.	Pub. Health
Babies Hospital	Wilmington, N. C.	Ped.
City Memorial Hospital ★	Winston-Salem, N. C.	Gen'l Pract., Int. Med., Ob.-Gyn., Ped., Surg.
Kate Bitting Reynolds Memorial Hospital ★	Winston-Salem, N. C.	Surg.
North Carolina Baptist Hospital ★	Winston-Salem, N. C.	Anes., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Bismarck Hospital	Bismarck, N. Dak.	Int. Med., Rad., Surg.
St. Luke's Hospital ★	Fargo, N. Dak.	Int. Med., Ob.-Gyn., Surg.
Akron City Hospital ★	Akron, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Akron General Hospital ★	Akron, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Children's Hospital	Akron, Ohio	Ortho. Surg., Ped.
St. Thomas Hospital ★	Akron, Ohio	Gen'l Pract., Ob.-Gyn., Surg.
Barberton Citizens Hospital ★	Barberton, Ohio	Gen'l Pract.
Veterans Admin. Hospital	Brecksville, Ohio	Pul. Dis.

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Aultman Hospital ★	Canton, Ohio	Int. Med., Ob.-Gyn., Path., Surg.
Mercy Hospital ★	Canton, Ohio	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Windsor Hospital	Chagrin Falls, Ohio	Psych.
Bethesda Hospital ★	Cincinnati	Int. Med., Ob.-Gyn., Path.
Children's Hospital	Cincinnati	Ortho. Surg.. Ped., Surg.
Christ Hospital ★	Cincinnati	Anes., Gen'l Pract., Int. Med., Neuro. Surg., Path., Surg.
Cincinnati General Hospital ★	Cincinnati	Card. Dis., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol
Deaconess Hospital	Cincinnati	Surg.
Good Samaritan Hospital ★	Cincinnati	Gen'l Pract., Int. Med., Neuro. Surg., Path., Ped., Rad., Surg.
Jewish Hospital ★	Cincinnati	Int. Med., Ortho. Surg., Path., Psych., Rad., Surg.
Longview State Hospital	Cincinnati	Psych.
St. Mary's Hospital ★	Cincinnati	Cardio. Dis., Int. Med., Surg.
University of Cincinnati, Institute of Industrial Health	Cincinnati	Occ. Med.
City Hospital ★	Cleveland	Anes., Derm., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Cleveland Clinic Hospital ★	Cleveland	Anes., Card. Dis., Derm., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Cleveland Receiving Hospital	Cleveland	Psych.
Evangelical Deaconess Hospital ★	Cleveland	Ob.-Gyn., Surg
Fairview Park Hospital ★	Cleveland	Anes., Int. Med., Ob.-Gyn., Surg.
Highland View—Cuyahoga County Hospital	Cleveland	Int. Med., Phys. Med.
Huron Road Hospital ★	Cleveland	Anes., Int. Med.. Ob.-Gyn., Path., Rad., Surg., Urol.
Lutheran Hospital ★	Cleveland	Int. Med., Obst., Path., Surg.
Mount Sinai Hospital ★	Cleveland	Anes., Int. Med., Ob.-Gyn., Ortho Surg., Path., Rad., Surg.
St. Alexis Hospital ★	Cleveland	Anes., Int. Med., Obst., Surg.
St. Ann Hospital	Cleveland	Obst.
St. John's Hospital ★	Cleveland	Int. Med , Ob -Gyn., Surg.
St. Luke's Hospital ★	Cleveland	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg.
St. Vincent Charity Hospital ★	Cleveland	Int. Med., Path., Rad., Surg.
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Cleveland	Pul. Dis., Thor. Surg.
University Hospitals ★	Cleveland	Anes., Card. Dis., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Cleveland	Int. Med., Mal., Dis., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Woman's Hospital	Cleveland	Gen'l Pract.
Doctors Hospital	Cleveland Heights	Surg.
Benjamin Franklin Hospital	Columbus, Ohio	Thor. Surg.
Children's Hospital	Columbus, Ohio	Ortho. Surg., Otol., Path., Ped., Surg.
Columbus State Hospital	Columbus, Ohio	Psych.
Grant Hospital ★	Columbus, Ohio	Path.
Mount Carmel Hospital ★	Columbus, Ohio	Gen'l Pract.. Int. Med., Ob.-Gyn., Ortho. Surg., Surg., Thor. Surg.
Ohio State University Hospitals		
Columbus Receiving Hospital	Columbus, Ohio	Psych.
Ohio Tuberculosis Hospital	Columbus, Ohio	Pul. Dis., Thor. Surg.
University Hospital ★	Columbus, Ohio	Allergy, Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Occ Med., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Plas. Surg., Psych., Pul. Dis., Rad., Surg , Thor. Surg., Urol.
St. Ann Hospital for Women	Columbus, Ohio	Ob.-Gyn.
St. Anthony Hospital	Columbus, Ohio	Gen'l Pract.
White Cross Hospital ★	Columbus, Ohio	Card. Dis., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Surg
Good Samaritan Hospital ★	Dayton, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn.
Miami Valley Hospital ★	Dayton, Ohio	Gen'l Pract.. Obst., Path., Rad., Surg.
St. Elizabeth Hospital ★	Dayton, Ohio	Surg.
Veterans Admin. Hospital	Dayton, Ohio	Int. Med., Path., Phys. Med., Rad., Surg., Urol.
Wright-Patterson Air Force Base	Dayton, Ohio	Aviat. Med.
Elyria Memorial Hospital and Gates Hospital for Crippled Children ★	Elyria, Ohio	Gen'l Pract. Ortho. Surg., Path., Rad.
Euclid-Glenville Hospital ★	Euclid, Ohio	Gen'l Pract.
Marymount Hospital	Garfield Heights, Ohio	Anes., Int. Med., Ob.-Gyn., Surg
Mercy Hospital ★	Hamilton, Ohio	Int. Med., Ob.-Gyn., Path., Surg.
Lakewood Hospital ★	Lakewood, Ohio	Int. Med., Ob.-Gyn., Surg.
Lima Memorial Hospital ★	Lima, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Surg.
St. Rita's Hospital ★	Lima, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
St. Joseph Hospital ★	Lorain, Ohio	Rad.
Mansfield General Hospital	Mansfield, Ohio	Surg.
Springfield City Hospital ★	Springfield, Ohio	Path.
Ohio Valley Hospital ★	Steubenville, Ohio	Gen'l Pract.
Flower Hospital ★	Toledo, Ohio	Surg.
Maumee Valley Hospital ★	Toledo, Ohio	Int Med., Obst., Path., Surg., Urol.
Mercy Hospital ★	Toledo, Ohio	Gen'l Pract.. Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Charles Hospital ★	Toledo, Ohio	Psych.
St. Vincent's Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg., Urol.
Toledo Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path.
Trumbull Memorial Hospital ★	Warren, Ohio	Int. Med., Path.
[illegible]	Worthington, Ohio	Psych.
[illegible]	Youngstown, Ohio	Int. Med., Ob.-Gyn., Path., Surg.
[illegible]	Youngstown, Ohio	Anes., Gen'l Pract., Int. Med., Ortho. Surg., Path., Proct., Rad., Surg.
[illegible]	Norman, Okla.	Psych.
Bone and Joint Hospital and McBride Clinic	Oklahoma City	Ortho. Surg.
St. Anthony Hospital ★	Oklahoma City	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg.
University Hospitals ★	Oklahoma City	Anes., Derm., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital ★	Oklahoma City	Int. Med., Ortho. Surg., Phys. Med., Psych., Rad., Surg.
Wesley Hospital ★	Oklahoma City	Int. Med., Ob.-Gyn., Rad., Surg.
Hillcrest Medical Center ★	Tulsa, Okla.	Path., Ped., Surg.
St. John's Hospital ★	Tulsa, Okla.	Int. Med., Ob -Gyn., Path., Ped., Rad., Surg.
Emanuel Hospital ★	Portland, Ore.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg.
Good Samaritan Hospital ★	Portland, Ore.	Int. Med., Path., Surg.
Providence Hospital ★	Portland, Ore.	Int. Med., Path., Rad., Surg.
St. Vincent's Hospital ★	Portland, Ore.	Gen'l Pract., Int. Med., Obst., Path., Surg.
Shriner's Hospital for Crippled Children	Portland, Ore.	Ortho. Surg.
State of Oregon	Portland, Ore.	Pub. Health
University of Oregon Medical School Hospitals and Clinics ★	Portland, Ore.	Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Portland, Ore.	Gastro., Int. Med., Ortho. Surg., Otol., Path., Phys. Med., Surg., Urol.
Oregon State Hospital	Salem, Ore.	Psych.
Abington Memorial Hospital ★	Abington, Pa.	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg.
Allentown Hospital ★	Allentown, Pa.	Int. Med., Ob.-Gyn., Path., Plas. Surg., Proct., Surg.
Allentown State Hospital	Allentown, Pa.	Psych.
Sacred Heart Hospital ★	Allentown, Pa.	Int. Med., Path., Rad., Surg.
Altoona Hospital ★	Altoona, Pa.	Gen'l Pract., Ob.-Gyn., Path.
St. Luke's Hospital ★	Bethlehem, Pa.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Bradford Hospital	Bradford, Pa.	Gen'l Pract., Surg.
Bryn Mawr Hospital ★	Bryn Mawr, Pa.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Chester Hospital ★	Chester, Pa.	Gen'l Pract., Path.
Veterans Admin. Hospital	Coatesville, Pa.	Psych.
Danville State Hospital	Danville, Pa.	Psych.

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DeGoesbriand Memorial Hospital ★	Burlington, Vt.	Anes., Gen'l Pract., Int. Med., Neur., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Mary Fletcher Hospital ★	Burlington, Vt.	Anes., Int. Med., Neur., Ob.-Gyn., *Path.*, Ped., Rad., Surg., Urol.
Vermont State Hospital	Waterbury, Vt.	Psych.
Veterans Admin. Hospital	White River Junction, Vt.	Anes., Int. Med., Neuro. Surg., Path., Plas. Surg., *Surg.*, *Urol.*
Alexandria Hospital ★	Alexandria, Va.	*Int. Med., Ob.-Gyn.*
Arlington Hospital	Arlington, Va.	Ob.-Gyn.
Blue Ridge Sanatorium	Charlottesville, Va.	Pul. Dis.
University of Virginia Hospital ★	Charlottesville, Va.	Allergy, Anes., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol
Chesapeake & Ohio Railway Employees Hospital ★	Clifton, Forge, Va.	Int. Med., Surg.
Memorial Hospital ★	Danville, Va.	Path.
U. S. Army Hospital	Fort Belvoir, Va.	Surg.
Lynchburg General Hospital ★	*Lynchburg, Va.*	*Obst., Path., Surg.*
Riverside Hospital ★	Newport News, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path.
De Paul Hospital ★	Norfolk, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Norfolk Community Hospital	Norfolk, Va.	Gen'l Pract.
Norfolk General Hospital ★	Norfolk, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Public Health Service Hospital ★	Norfolk, Va.	Gen'l Pract.
U. S. Naval Hospital ★	Portsmouth, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
Crippled Children's Hospital	Richmond, Va.	Ortho. Surg.
Johnston-Willis Hospital ★	Richmond, Va.	Int. Med., Obst., Path., Surg.
Medical College of Virginia - Hospital Division ★	Richmond, Va.	Allergy, Anes., Derm., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Retreat for the Sick	Richmond, Va.	*Gen'l Pract.*
St. Elizabeth Hospital	Richmond, Va.	Surg.
State of Virginia	Richmond, Va.	*Pub. Health*
Veterans Admin. Hospital	Richmond, Va.	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho Surg., Path., *Phys. Med.*, *Psych.*, Pul. Dis., Rad., Surg., Thor. Surg., Urol
Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va.	Ophth., Otol.
Jefferson Hospital ★	Roanoke, Va.	Int. Med., Surg.
Lewis-Gale Hospital ★	Roanoke, Va.	Int. Med., Surg.
Louise Obici Memorial Hospital	Suffolk, Va.	Gen'l Pract.
Eastern State Hospital	Williamsburg, Va.	Psych.
Madigan Army Hospital ★	Fort Lewis, Wash.	Int. Med., Ob.-Gyn., Surg.
Children's Orthopedic Hospital	Seattle	Anes., Ortho. Surg., Ped., Surg.
Doctor's Hospital ★	Seattle	Anes., Int. Med., Ob-Gyn., Path., Surg.
Firland Sanatorium	*Seattle*	*Pul. Dis., Thor. Surg.*
King County Hospital Unit 1 (Harborview) ★	Seattle	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., *Surg.*, *Urol.*
Pinel Foundation	Seattle	Psych.
Providence Hospital ★	Seattle	Gen'l Pract., Int. Med., Obst., Ortho. Surg., Path., Rad., Surg.
State of Washington	Seattle	Pub. Health
Swedish Hospital ★	Seattle	Int. Med., Ob.-Gyn., Path., Surg.
U. S. Public Health Service Hospital ★	Seattle	Int. Med., Path., Surg.
Veterans Admin. Hospital	Seattle	Anes., *Int. Med.*, Neur., Ortho. Surg., Path., Psych., Surg.
Virginia Mason Hospital ★	Seattle	Anes., Int. Med., Obst., Path., Rad., Surg.
Central Washington *Tuberculosis Hospital*	Selah, Wash.	Pul. Dis.
Deaconess Hospital ★	Spokane, Wash.	Path.
Sacred Heart *Hospital* ★	Spokane, Wash.	Gen'l Pract., Ob.-Gyn., Path., Rad., Surg.
St. Luke's *Hospital* ★	Spokane, Wash.	Gen'l Pract., Ob.-Gyn., *Path.*
Shriners Hospital for Crippled Children	Spokane, Wash.	Ortho. Surg.
St. Joseph Hospital ★	Tacoma, Wash.	Path.
Tacoma General Hospital ★	Tacoma, Wash.	Anes., Path.
Beckley Hospital	Beckley, W. Va.	Surg.
Bluefield Sanitarium	*Bluefield*, W. Va.	Gen'l Pract.
Charleston General Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Path., Surg.
Kanawha Valley *Hospital* ★	*Charleston*, W. Va.	Surg.
Memorial Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., *Ped.*, Surg.
St. Mary's Hospital	Clarksburg, W. Va.	Path.
Chesapeake & Ohio Hospital	Huntington, W. V.	Int. Med., Surg.
St. Mary's Hospital ★	*Huntington*, W. Va.	Path., Surg.
Veterans Admin. Hospital	*Martinsburg*, W. Va.	Path., Rad., Surg.
Laird Memorial Hospital	*Montgomery*, W. Va	Surg.
Camden-Clark Memorial Hospital ★	Parkersburg, W. Va.	Gen'l Pract.
St. Joseph's Hospital ★	*Parkersburg*, W. Va.	Gen'l Pract.
Broaddus Hospital	Philippi, W. Va.	Surg.
Ohio Valley General Hospital ★	Wheeling, W. Va.	Anes., *Gen'l Pract.*, *Int.* Med., Path., Surg.
Luther Hospital ★	Eau Claire, Wis.	Gen'l Pract.
Mercy Hospital ★	Janesville, Wis.	Surg.
La Crosse Lutheran Hospital ★	La Crosse, Wis.	Int. Med., Surg.
Madison General Hospital ★	Madison, Wis.	Int. Med., Ob.-Gyn., Path., Surg., Urol.
Mendota State Hospital	Madison, Wis.	Psych.
Methodist Hospital ★	Madison, Wis.	Surg.
St. Mary's Hospital ★	Madison, Wis.	Int. Med., Ob.-Gyn.
University Hospitals ★	Madison, Wis.	Allergy, Anes., Card. Dis., Derm., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
St. Joseph's Hospital ★	Marshfield, Wis.	Int. Med.
Columbia Hospital ★	*Milwaukee*	*Int.* Med., Obst., Ortho. Surg., Path., Rad., Surg.
Evangelical Deaconess Hospital ★	Milwaukee	Gen'l Pract., Surg.
Milwaukee Children's Hospital ★	Milwaukee	Ortho. Surg., Ped.
Milwaukee County Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Ophth., Path., Ped., Proct., Rad., Surg., Urol.
Milwaukee Hospital ★	Milwaukee	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mount Sinai Hospital ★	Milwaukee	Int. Med., Ob.-Gyn.
Muirdale Sanitorium	Milwaukee	Pul. *Dis.*
St. Joseph's Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Luke's Hospital ★	Milwaukee	Gen'l Pract., Int. Med., *Ob.-Gyn.*, Path., Rad., Surg.
St. Mary's Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Path.
St. Michael's Hospital ★	Milwaukee	*Gen'l Pract.*
Veterans Admin. Hospital	Milwaukee (Wood)	Anes., Derm., Gastro., Int. Med., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Milwaukee Sanitorium	Wauwatosa, Wis.	Path.
Gorgas Hospital ★	Ancon, C. Z.	*Int. Med., Ob.-Gyn.*, Ophth., Path., Ped., Surg.
Kapiolani Maternity and Gynecological Hospital	Honolulu, T. H.	Ob.-Gyn.
Kauikeolani Children's Hospital	Honolulu, T. H.	Ped.
Leahi Hospital	Honolulu, T. H.	Pul. Dis., Thor. Surg.
Queen's Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path., Psych., Surg.
St. Francis Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path.
Shriners Hospital for Crippled Children	Honolulu, T. H.	Ortho. Surg.
Tripler Army Hospital ★	Kanoehe, Oahu, T. H.	Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
Territorial Hospital	Bayamon, P. R.	*Psych.*
Bayamon District Hospital ★	*Bayamon*, P. R.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Hospital Hato Tejas, Inc.	San Juan, P. R.	Psych.
San Juan City Hospital ★	San Juan, P. R.	Anes., Int. Med., Ob.-Gyn., *Ophth.*, *Path.*, *Ped.*, Rad., Surg., Urol.
Veterans Admin. Hospital	San Juan, P. R.	Int. Med., Phys. Med., Rad., Surg.

★ *Indicates* hospitals approved for training interns.

REQUIREMENTS FOR CERTIFICATION

AMERICAN SPECIALTY BOARDS

Examining and certifying boards in 19 specialties have been approved by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties on the basis of minimal standards governing accreditation of specialty boards as formulated by the Council.

The primary purposes of the boards are (1) to conduct investigations and examinations to determine the competence of voluntary candidates for certificates issued by the respective boards, (2) to grant and issue certificates of qualification to candidates successful in demonstrating their proficiency, (3) to stimulate the development of adequate training facilities, (4) to aid in evaluating residencies and fellowships under consideration by the Council on Medical Education and Hospitals of the American Medical Association, and (5) to advise physicians desiring certification as to the course of study and training to be pursued.

The boards are in no sense educational institutions, and the certificate of a board is not to be considered a degree. It does not confer on any person legal qualifications, privileges, or a license to practice medicine or a specialty. The boards do not purport in any way to interfere with or limit the professional activities of any licensed physician, nor do they desire to interfere with any practitioners of medicine in any of their regular or legitimate duties.

Two boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology, and pulmonary diseases. The American Board of Pediatrics certifies in allergy. Certification in the primary field is a requirement for certification in the subspecialties. The Board of Thoracic Surgery, which is organized as an affiliate board of the American Board of Surgery, requires certification in surgery as a prerequisite to certification in thoracic surgery.

Certificates in special divisions of their specialty are conferred by six boards. The American Board of Obstetrics and Gynecology will issue certificates in obstetrics or gynecology only. The American Board of Otolaryngology grants a limited certificate in endoscopy. The American Board of Pathology issues certificates in pathological anatomy, clinical pathology, a combination of these two fields, pathological anatomy and clinical microbiology, clinical microbiology and clinical chemistry, clinical bacteriology, neuropathology, clinical microbiology, hematology, and clinical chemistry. The American Board of Preventive Medicine issues certificates in public health, aviation medicine, and occupational medicine. The American Board of Psychiatry and Neurology issues separate certificates in psychiatry and in neurology, or a combined certificate for those qualified in both fields. This board also issues supplementary certificates in psychiatry and in neurology. The American Board of Radiology issues certificates in radiology, roentgenology, therapeutic radiology, diagnostic roentgenology, therapeutic roentgenology, radium therapy, radiological physics, x-ray and radium physics, and medical nuclear physics.

The majority of the American specialty boards have published booklets containing a list of their officers together with statements regarding organization, purposes, and qualifications that determine eligibility for certification. In this issue of The Journal, there are published, with the consent of each board concerned, the requirements for certification in specialties. This information is published for the convenience of those physicians who are planning to seek board certification. Any specific inquiry concerning certification by a specialty board should be addressed to the board secretary, whose name and address will be found in this issue of The Journal.

Table 1 contains a list of the approved specialty boards, the year of activation, and the total number of candidates certified through June 30, 1957. Data are also presented regarding the number of physicians certified in the subspecialties and those granted special certification by the boards in obstetrics and gynecology, otolaryngology, pathology, preventive medicine, psychiatry and neurology, and radiology.

Table 1.—*Approved Examining Boards in Medical Specialties*

Name of Board	Year of Activation	Total Certificates Awarded to June 30, 1957
American Board of Anesthesiology	1937	1,698
American Board of Dermatology	1932	1,846
American Board of Internal Medicine	1936	11,336
American Board of Neurological Surgery	1940	715
American Board of Obstetrics and Gynecology	1930	5,258
American Board of Ophthalmology	1915	4,642
American Board of Orthopaedic Surgery	1934	2,876
American Board of Otolaryngology	1924	5,250
American Board of Pathology	1936	3,283
American Board of Pediatrics	1933	6,069
American Board of Physical Medicine and Rehabilitation	1947	322
American Board of Plastic Surgery	1937	386
American Board of Preventive Medicine	1948	1,915
American Board of Proctology	1949	259
American Board of Psychiatry and Neurology	1934	5,885
American Board of Radiology	1934	5,654
American Board of Surgery	1937	8,790
Board of Thoracic Surgery (Affiliate of the American Board of Surgery)	1949	677
American Board of Urology	1935	2,310
Totals		69,151
Certification in Subspecialties		
American Board of Internal Medicine		
Allergy		158
Cardiovascular Disease		563
Gastroenterology		375
Pulmonary Diseases		255
Totals		1,351
American Board of Pediatrics		
Allergy		77
American Board of Surgery		
Proctology		81*
Totals		1,509
Special Certification		
American Board of Obstetrics and Gynecology		
Obstetrics		22
Gynecology		14
Totals		36
American Board of Otalaryngology		
Endoscopy		4
American Board of Pathology		
Pathological Anatomy		1,658
Clinical Pathology		473
Pathological Anatomy and Clinical Pathology		1,107
Pathological Anatomy and Clinical Microbiology		1
Clinical Microbiology and Clinical Chemistry		1
Clinical Bacteriology		2
Neuropathology		15
Clinical Microbiology		17
Hematology		4
Clinical Chemistry		5
Totals		3,283
American Board of Preventive Medicine		
Aviation Medicine		352
Occupational Medicine		312
Public Health		1,251
Totals		1,915
American Board of Psychiatry and Neurology		
Psychiatry		4,524
Neurology		389
Psychiatry and Neurology		972
Totals		5,885
American Board of Radiology		
Radiology		3,879
Roentgenology		962
Diagnostic Roentgenology		561
Therapeutic Radiology		168
Therapeutic Roentgenology		4
Radium Therapy		7
Radiological Physics		51
X-ray and Radium Physics		16
Medical Nuclear Physics		6
Totals		5,654

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* Independent board established in 1949

A total of 63,727 physicians were reported certified by the 19 specialty boards on July 1, 1956. From this date through June 30, 1957, 5,424 physicians were certified, bringing the total to 69,151 certifications on June 30, 1957. Eighty-six physicians were certified in the subspecialties, bringing that total to 1,509 on the same date.

Table 2 indicates the total number of physicians certified each year for the past 15 years by all specialty boards. The total number certified on June 30, 1957, was 69,151.

The eighth edition of the "Directory of Medical Specialists," compiled by the Advisory Board for Medical Specialties and published in 1957 by the A. N. Marquis Company, Chicago, contains biographic information on the educational background of each living specialist, including those retired from practice, certified by an American board.

AMERICAN BOARD OF ANESTHESIOLOGY

Donald L. Burdick, President
New York
Frederick P. Haugen, Vice President
Portland, Ore.
Stuart C. Cullen, Iowa City
Robert B. Dripps, Philadelphia
Albert Faulconer, Rochester, Minn.
Forrest E. Leffingell, Pasadena, Calif.
E. M. Papper, New York
Milton C. Peterson, Kansas City, Mo.
Harvey C. Slocum, Washington, D. C.
Scott M. Smith, Salt Lake City
Curtiss B. Hickcox, Secretary-Treasurer, 80 Seymour St., Hartford, Conn.

The regulations of this specialty board are undergoing revision at this time. For current requirements for certification, communications should be addressed to the Secretary of the American Board of Anesthesiology.

Table 2.—*Annual Specialty Board Certification, 1942-1957*

Year (Ended March)	No. of Boards in Existence	No. Certified	Cumulative Totals
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498
1949 (June 30)	19*	4,479	35,977
1950 (June 30)	19	3,827	39,804
1951 (June 30)	19	4,552	44,346
1952 (June 30)	19	4,118	48,464
1953 (June 30)	19	4,022	52,486
1954 (June 30)	19	4,133	56,619
1955 (June 30)	19	3,843	60,644
1956 (June 30)	19	3,083	63,727
1957 (June 30)	19	5,424	69,151

* One board, the American Board of Proctology, did not certify any candidates during this period.

AMERICAN BOARD OF DERMATOLOGY

John H. Lamb, President
Oklahoma City
J. Lamar Callaway, Vice President
Durham, N. C.
Marcus R. Caro, Chicago
Arthur C. Curtis, Ann Arbor, Mich.
Clinton W. Lane, St. Louis
Frances W. Lynch, St. Paul
J. Walter Wilson, Los Angeles
Beatrice Maher Kesten, Secretary, 1 Haven Ave., New York 32, N. Y.
Walter C. Lobitz Jr., Assistant Secretary, Hanover, N. H.

For current requirements for certification, communications should be addressed to the Secretary of the American Board of Dermatology.

AMERICAN BOARD OF INTERNAL MEDICINE

Thomas M. Durant, Chairman, Philadelphia
Howard P. Lewis, Vice-Chairman, Portland, Ore.
Wright R. Adams, Chicago
Thomas H. Brem, Los Angeles
George E. Burch, New Orleans
Hugh R. Butt, Rochester, Minn.
Franklin M. Hanger, New York
Chester M. Jones, Boston
John Minor, Washington, D. C.
George A. Perera, New York
Albert M. Snell, Palo Alto, Calif.
Victor W. Logan, Rochester, N. Y.
Thomas Findley, Secretary-Treasurer, Augusta, Ga.
William A. Werrell, Executive Secretary-Treasurer, 1 W. Main St., Madison, Wis.

Sub-Specialty Boards

Allergy

Vincent J. Derbes, New Orleans
Samuel M. Feinberg, Chicago
Stanley F. Hampton, St. Louis
Francis C. Lowell, Boston
William B. Sherman, New York

Cardiovascular Disease

Charles A. R. Connor, New York
A. Carlton Ernstene, Cleveland
Frank B. Kelly Sr., Chicago
J. Murray Kinsman, Louisville, Ky.
Bruce Logue, Atlanta, Ga.
Richard H. Lyons, Syracuse, N. Y.
Raymond D. Pruitt, Rochester, Minn.

Gastro-Enterology

Leon Schiff, Cincinnati
Lowell D. Snorf, Evanston, Ill.
Henry J. Tumen, Philadelphia
C. Wilmer Wirts, Philadelphia
Eric E. Wollaeger, Rochester, Minn.

Pulmonary Diseases

Alvis E. Greer, Houston, Texas
Roger S. Mitchell Jr., Denver
Edward S. Ray, Richmond, Va.
David T. Smith, Durham, N. C.
Julius L. Wilson, Philadelphia

GENERAL QUALIFICATIONS

1. All candidates must be citizens of the United States or Canada.
2. All candidates must be licensed to practice medicine in a state, territory, or possession of the United States or Canada.
3. All candidates must present evidence of satisfactory moral and ethical standing in the medical profession.

PROFESSIONAL QUALIFICATIONS

1. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the date of graduation.
2. Satisfactory completion of an approved internship of not less than twelve months.*
3. Residency or fellowship approved by the Council on Medical Education and Hospitals of the American Medical Association in internal medicine according to the following plan (Plan A) or one of the alternate plans described under paragraph 4.

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* During the period in which the 9-9-9 program was in effect an approved internship of nine months will satisfy the requirement of twelve months. A residency of nine months is considered as nine months only.

(Plan A) A residency or fellowship in internal medicine for a *period* of not less than three years in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association for residency or fellowship in internal medicine. In such instances in which a resident's nominal status differs from that of the other hospital residents, he must furnish the Board with certification by the Chief of the Medical Service and the Medical Director of the Hospital that he actually performed the full duties of a resident as a bonafide member of the residency program. In addition, two years of adequate *clinical experience in the practice of* internal medicine following graduate training will be required. The Board will accept the following equivalents as satisfying one year only, of the three years of residency or fellowship to which this paragraph refers. (Two years must be in the field of general internal medicine.)

(a) If twelve months of a two year approved internship in a hospital approved for residency training in internal medicine is limited to the medical service and the medical specialties, credit will be granted for a first year of assistant residency. The remaining two years of residency training must be in the general field of internal medicine. Certification by the Chief of the Medical Service as to compliance with this requirement must accompany application.

(b) One year of approved residency in one of the medical specialties: Allergy, Cardiovascular Disease, Gastro-Enterology, Hematology, Pathology, Pulmonary Diseases, Neurology, Pediatrics, Psychiatry, Dermatology and Syphilology, *or one* year of an approved General Practice residency provided the *candidate completes in addition, two full years* of approved residency in the general field of internal medicine.

(c) One year as a graduate student or as an instructor in an approved medical school on a full time basis in Bacteriology, Biochemistry, Pathology, Pharmacology, Physiology, or Internal Medicine.

(d) An advanced degree in the Medical Sciences, provided the work has been done and the degree obtained after graduation from medical school.

Note: Graduate training credit for the time involved will be allowed candidates who take and satisfactorily complete post-graduate courses in internal medicine or the basic medical sciences provided by accredited medical schools on a full time basis. *This ruling shall not apply to courses* of less than three months or more than twelve months duration. A certification of creditable performance, based in part, at least, on a formal examination upon completion of the course, will be required.

Note: Fellowship or Research assignments not approved by the Council on Medical Education and Hospitals will require certification by the Chief of Service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in internal medicine or the sub-specialties recognized by this Board. This certification must be presented before application is filed.

4. Alternate Training Plans: The Board firmly believes that the plan of intensive training prescribed above offers the best opportunity for a young physician to prepare himself to meet his responsibilities as a specialist in internal medicine. It is recognized, however, that capable individuals may accomplish the same result in a longer period of time during which the training is less intensive. The Board realizes that a number of medical graduates cannot follow the shorter and more desirable plan either because suitable residencies are not available, or in some instances because of personal and economic reasons. Accordingly the Board has modified its previous regulations governing eligibility for admission to examination. In doing so the Board has not modified its standards of examination. It has liberalized its eligibility requirements for admission to examination by accepting *half-time formal training,* and the practice of internal medicine under circumstances favorable as to professional and hospital contacts, in lieu of part of the full-time requirements. It is hoped that by this means exceptional individuals may acquire a knowledge of medicine and experience in its application sufficient to qualify for examination.

The program previously described (Plan A), which consists of three years of formal training in an approved residency or its equivalent, following internship, and followed by two additional years in the practice of internal medicine, is recommended by the Board. Variations in this program are now subject to the following regulations.

(a) In all instances, one year of approved internship and one year of approved residency will be required, except as indicated under Plan "G." The graduate training credit of one year heretofore granted as a result of active duty as a commissioned officer in the Armed Forces during the period beginning December 7, 1941, and ending January 1, 1947, and during the Korean emergency beginning June 1, 1950, and ending July 1, 1954, may not be applied *in satisfaction* of the one year of approved residency referred to in Plans D, E. F, *unless the candidate's assignment is considered* by the Board to have been equivalent to an approved residency.

(b) Following *one year of internship* and two years of approved residency, the remaining requirements may be satisfied by:

(Plan B) That is, by two years of half-time formal training followed by two years of practice limited to internal medicine, or by

(Plan C) That is, by five years of practice limited to internal medicine.

(c) Following one year of internship and one year of approved residency, the remaining requirements may be satisfied by:

(Plan D)° That is, by four years of half-time formal training followed by two years of practice limited to internal medicine, or by,

(Plan E)° That is, by two years of half-time formal training followed by five years of practice limited to internal medicine, or by

(Plan F) That is, by eight years of practice limited to internal medicine.

(d) (Plan G) Physicians who have practiced internal medicine for twelve years following an approved internship may qualify for the examinations without further training.

(e) (Plan H) In order to liberalize the opportunity for adequate training in terms of the requirements of this Board, a special plan (Plan H) has been designed for those men who have been *specially selected for a career in academic medicine.* This plan is as follows:

"*Admission to the written examination* will be granted to a candidate affiliated with a Class A medical school in the United States or Canada who is *recommended* by the Head of the Department of Medicine of the Medical School as being adequately trained in Internal Medicine, provided the candidate has had at least five years of training following an approved internship. This training must have included direct responsibility for patient care in the broad field of internal medicine. This plan is designed for men who contemplate a career in academic medicine."

It will be the responsibility of Heads of Departments of Medicine to affirm to the American Board of Internal Medicine *that the candidate* is qualified for admission to examination after a minimum of five years of training. It may well be that the Head of the Department will require additional years of training beyond the minimum before stating the qualifications of the candidate to the Board. A candidate thus recommended under *the foregoing provisions* will be examined by the Board in the broad field of internal medicine.

If, *during the period of training* under Plan H, the candidate decides to qualify under one of the other plans of the Board (A to G) credit will be granted on the basis of the requirements of Plans A to G.

Half-time formal training under expanded plans B, D and E is defined as follows:

1. Half-time° as an instructor in clinical medicine in a recognized medical school in the United States or Canada.

2. Half-time° in a research fellowship sponsored by a recognized medical school in the United States or Canada.

3. Half-time° as a graduate student in an approved medical school in the United States or Canada.

5. Practice Requirements: A period of not less than two years (to be completed by the time of the first written examination) of adequate clinical experience in the practice of internal medicine. This requirement may be satisfied by inde-

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E. M. Papper, New York
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Harvey C. Slocum, Washington, D. C.
Scott M. Smith, Salt Lake City
Curtiss B. Hickcox, Secretary-Treasurer, 80 Seymour St., Hartford, Conn.

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J. Walter Wilson, Los Angeles
Beatrice Maher Kesten, Secretary, 1 Haven Ave., New York 32, N. Y.
Walter C. Lobitz Jr., Assistant Secretary, Hanover, N. H.

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Howard P. Lewis, Vice-Chairman, Portland, Ore.
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Thomas H. Brem, Los Angeles
George E. Burch, New Orleans
Hugh R. Butt, Rochester, Minn.
Franklin M. Hanger, New York
Chester M. Jones, Boston
John Minor, Washington, D. C.
George A. Perera, New York
Albert M. Snell, Palo Alto, Calif.
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William A. Werrell, Executive Secretary-Treasurer, 1 W. Main St., Madison, Wis.

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A. Carlton Ernstene, Cleveland
Frank B. Kelly Sr., Chicago
J. Murray Kinsman, Louisville, Ky.
Bruce Logue, Atlanta, Ga.
Richard H. Lyons, Syracuse, N. Y.
Raymond D. Pruitt, Rochester, Minn.

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Leon Schiff, Cincinnati
Lowell D. Snorf, Evanston, Ill.
Henry J. Tumen, Philadelphia
C. Wilmer Wirts, Philadelphia
Eric E. Wollaeger, Rochester, Minn.

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PROFESSIONAL QUALIFICATIONS

1. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the date of graduation.
2. Satisfactory completion of an approved internship of no less than twelve months.*
3. Residency or fellowship approved by the Council on Medical Education and Hospitals of the American Medical Association in internal medicine according to the following plan (Plan A) or one of the alternate plans described under paragraph 4.

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*During the period in which the 9-9-9 program was in effect a approved internship of nine months will satisfy the requirement of twelve months. A residency of nine months is considered as nine months only.

in October. This examination is divided into a morning and afternoon period for each of which three hours are allowed. The questions are of the multiple choice type, framed in such manner as the Board elects, and designed to test the candidate's basic clinical acumen and his knowledge of applied physiology, anatomy, physiological chemistry, pathology, bacteriology, and pharmacology as related to internal medicine.

2. Candidates must pass the written examination before admission to the oral examination will be authorized. Oral examinations are held near the time and place of the annual meetings of the American Medical Association and the American College of Physicians and at such other times and places as the Board may designate. Announcements of all oral examinations will appear in the *Annals of Internal Medicine* and THE JOURNAL of the American Medical Association. Applications cannot be accepted until the schedule is announced in the publications referred to and cannot be accepted after the closing date as announced.

3. The oral examination will be conducted under the direct supervision of the Board. It will be given by members of the Board of Internal Medicine with the assistance of such Guest Examiners as may be selected. Oral examinations are conducted at the bedside of each of two patients previously assigned to each candidate. Forty-five minutes will be allowed for the examination of each of the patients before the candidate is examined orally. Candidates will be expected to present in a concise, orderly fashion pertinent facts in history and diagnosis. Demonstration of important physical findings will be requested by the examiner. During the oral examination, questions will be asked concerning diagnostic and therapeutic procedures related to the problems under discussion and to any other aspects of Internal Medicine. Conciseness and clarity of statements as well as evidence of clinical maturity will be searched for, in addition to factual knowledge. Furthermore, the candidate should be prepared to demonstrate his ability to interpret objective demonstrations of roentgenologic, pathologic, hematologic, electrocardiographic and other abnormalities.

AMERICAN BOARD OF NEUROLOGICAL SURGERY

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GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession satisfactory to the board of directors.

2. It shall be discretionary with the board to accept for examination candidates who have been in practice more than six years but whose formal training fails to meet the full requirements.

3. Properly qualified candidates who are permanent residents in and citizens of other countries and are legally qualified to practice medicine there, and who have received their training in neurological surgery in the United States of America or Canada may apply for certification by the American Board of Neurological Surgery.

4. A special certificate may be issued to foreign (not United States of America or Canadian citizens) candidates who have received their training in neurological surgery in the United States of America or Canada and who are returning to their own country at the end of their training period, upon passing successfully the regular examinations of this board, without completion of the requirement of two years in the practice of neurological surgery. This special certificate shall be appropriately identified to distinguish it from the regular certificate of this board.

PRELIMINARY PROFESSIONAL STANDING

1. Graduation from a medical school that is acceptable to the American Board of Neurological Surgery.

2. Completion of a surgical internship of not less than one year in a hospital acceptable to the board, or its equivalent in the opinion of the board. (A one year rotating internship does not satisfy this requirement.)

SPECIAL TRAINING

A period of graduate study of not less than four years beyond the year of general surgical training in an approved hospital, or in a recognized graduate school of medicine acceptable to the American Board of Neurological Surgery. Of this training period, at least 30 months must be devoted to clinical neurological surgery. The training in clinical neurological surgery must be progressive and not obtained during repeated short periods in a number of institutions. It is preferable that at least two years of this training be had in one institution, and the board will not ordinarily approve periods of training in clinical neurological surgery of less than one year.

Furthermore the candidate must prepare himself to pass a board examination in general surgery, organic neurology, neuropathology, neuro-anatomy, neuro-physiology, neuro-ophthalmology, and neuro-radiology.

An additional period of not less than two years of satisfactory independent practice of neurological surgery.

The above represent only the minimum requirements of eligibility for examination for certification by the board.

APPLICATIONS

An application on the official application blank in order to be considered at any meeting, must be in the hands of the secretary-treasurer of the board not less than six months before the date of such meeting.

PAYMENT OF FEES

The fee for certification shall be $100.

The candidate for examination on filing his application shall accompany it with an application fee of $25. When notified by the secretary-treasurer that he is eligible for examination he shall send the examination fee of $75 to the secretary-treasurer at least two weeks before the date of the examination.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

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2105 Adelbert Rd., Cleveland 6, Ohio
LAWRENCE M. RANDALL, Assistant Secretary,
Rochester, Minn.

REQUIREMENTS

Each applicant, before he may become eligible to apply for examination, must establish the following facts:

1. The possession of the degree of Doctor of Medicine from an institution of learning approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. That he is a physician of high ethical and professional standing duly licensed to practice medicine in the United States or Canada and is a member of a County or District Medical Society.

3. The completion of at least one year of intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association. The Board

accepts the fifth or "intern" medical year required by some schools in lieu of the usual fifth or intern year of clinical training following graduation.

4. The completion of seven years of training and practice after the first intern year to include at least three years of residency training in clinical obstetrics-gynecology in approved institutions. Approved preceptorship training may be substituted in part for residency training.

5. Following completion of acceptable training, two years of post-training practice, limited to the specialty, are required before application for examination can be made. Post-training practice may include practice within the specialty as an assistant or associate or independent practice. Periods of residency in obstetrics-gynecology in excess of the required three years will not be accepted as a substitute for any part of the two required years of post-training practice except in the cases of men advancing from the residency training into and planning to remain in full time faculty positions in medical schools and their affiliated hospitals.

6. That he is limiting his practice to obstetrics and/or gynecology and intends to continue to do so, except for possible military duty.

7. The Board conformed with the general acceleration in programs in medical education in that it will accept a period of nine "accelerated" months as an academic year in satisfying our requirements for each of three years of residency training. Such allowances can be made only for services during the war-time period of the official "accelerated program" and are not made for services before 1943 or after the discontinuance of this acceleration in 1946.

8. Applicants who have been certified by one of the other American specialty examining boards will not be eligible for certification by this Board until they have relinquished the certificate previously conferred, except upon special action to the contrary taken by the American Board of Obstetrics and Gynecology.

9. The Board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology, except by special ruling when this is related to active military duty.

10. This Board deprecates engagement in fields of practice other than that in which candidates profess to be specialists. The sole exception to this provision is that it is permissible for candidates and diplomates of the American Board of Obstetrics and Gynecology to participate in emergency care.

11. This Board will not accept applicants for examination who are not full citizens of the United States or of Canada. Foreign born applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a State or Provincial Board of Licensure. Notarized statements, not original citizenship papers, must be furnished when the application is filed attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born. Further, there will be required a probationary period of at least three (3) years from the date of licensure in the practice of medicine in these countries before such a candidate may be admitted · examination.

SPECIAL CREDITS AND RULINGS

1. Physicians otherwise qualified, who are graduated before January 1, 1939, and whose required training was in obstetrics or gynecology alone, and who have confined their practice to obstetrics or gynecology for at least five (5) years immediately prior to application may be accepted for examination as candidates for certification in either obstetrics or gynecology. In all other respects requirements for eligibility remain the same as for those physicians graduated since 1939. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless of whether a candidate's practice is limited to one or the other branch.

2. Basic science training should emphasize the relation of anatomy, pathology, physiology, biochemistry, and bacteriology, to the application of surgical principles which are fundamental in all branches of surgery. More especially for this specialty there should be training in infertility, endocrinology, oncology, irradiation therapy, electrotherapy, psychosomatic medicine and other nonoperative methods of diagnosis and treatment. In addition, the candidate must understand and be trained in the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, protein and nitrogen balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, etc.

3. After July 1, 1958, this Board will not allow credit within the three years required training period for separately organized basic science courses which remove the candidate from clinical training in obstetrics and/or gynecology.

4. Training in abdominal surgery, in addition to the required three (3) years of training in clinical obstetrics and gynecology, is desirable and may be included in the total minimal seven (7) years required after the intern year.

5. Applicants on service in obstetrics-gynecology under orders in hospitals of the Army, Navy, Air Force and Public Health Service will receive residency training credit if such hospitals are officially approved for training in this specialty

When the hospital is not approved, preceptorship training credit may be allowed if the service is supervised by a Diplomate of this Board or an otherwise qualified obstetrician and gynecologist. If such training credit is desired, candidates must comply with the regulation governing preceptorships. In addition, the Medical Officers Professional Training Record should be completed and attested while in military service.

Credit toward the required two years of post-training practice, limited to this specialty, will not be allowed for service in the Armed Forces except in the case of regular medical officers who have completed the training requirements.

APPLICATION AND FEES

Application must be made on a special blank which will b furnished by the Secretary's Office and must be forwarded wit the other required credentials and the application fee to th Secretary's Office not later than September 1, of each year.

All candidates must comply with Board regulations in effec for the year in which the examination is taken, regardless when the original application was filed.

Candidates applying for admission to the examinations f certification are required to submit with their application, a unbound typewritten list on 8½ by 11 paper of all patien admitted to the hospitals where they practice, for the ye preceding their application or the year prior to their reque for reopening of their application, with the age, parity, diagnos pathological diagnosis, nature of treatment, and end result.

The list should be certified by the hospital librarian, a ministrator or superintendent.

The application fee is $25.00 and is not returnable

The examination fee is $100.00 and is payable when t candidate is notified of acceptance for examination This is not returnable after the candidate has been officially cepted by the Credentials Committee and notified to rep for examination.

EXAMINATIONS

Part I examinations are scheduled annually for early in January. Arrangements will be made for candidates to report in any convenient city where there may be a Diplomate of this Board to conduct or to supervise the written examination which will be sent out from the Board's office under sealed cover

Special arrangement will be made through senior officers for conducting the written portion of the Part I examination for men in military service. Such candidates are requested to keep the Secretary's office informed at all times of changes in their mailing addresses.

All applicants accepted for examination will be required to obtain a passing grade in both the written examination and a review of case reports (Part I), before becoming eligible for the oral-clinical and pathology examinations (Part II). The passing grade for the written examination and case reports is 75 per cent. A candidate whose grade in either or both falls below 75 per cent is conditioned. Reexamination for the removal of conditions in Part I may be taken after one year but within three years after the first failure, without payment of an additional fee.

Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year.

Part I

Examination consists of:

1. A comprehensive written examination, conducted annually, luding questions on both obstetrics and gynecology and ated basic sciences. The written examination will be limited a maximum period of three hours.

2. *The evaluation of twenty (20) important obstetrical and* necological case reports in condensed form. Five (5) of the enty (20) *cases may concern major illnesses not necessarily* erative. These reports must include a variety of material ther than a number of reports of one type. Case reports from e's residency service shall not be more than five (5) in mber.

CASE REPORTS

In the case of candidates applying for unilateral certifican, case reports must pertain to the branch for which application is made.

Men holding full-time medical school faculty appointments ay submit the remainder of their case records from this fullme, non-private practice, but post-training service. The candate should prepare and maintain in his possession a carbon py of his case records in case of possible loss in shipping.

Evidence of adequate follow-up examination pertinent to ach individual case must be submitted.

The candidate should *submit separate* verified *index* lists, n duplicate, for each individual hospital at which *operations* ere performed. All of these must be formally signed by *the* esponsible hospital official (preferably the hospital superinndent), attesting in each instance that the candidate was he operator.

Part II

The oral-clinical and pathology examinations given all canlidates are conducted by the entire Board and the associate xaminers. Advance announcements of examination dates and lace will be made in medical journals throughout the country.

Examination consists of:

1. Oral examination before three or more examiners. An ndeavor is made to adapt the details of the oral examination o each candidate's experience and practice. The examination s particularly directed to ascertain his familiarity with recent bstetrical and gynecological literature, the related basic sciences, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

2. Pathology examination. The candidate is expected to identify and to discuss pathologic specimens and microscopic sections.

Examiners report orally upon each *candidate to the assembled* Board, after which the results of *their investigations* are considered jointly by the entire Board and associate examiners. After a general consideration of the details of the candidate's oral and pathology examinations, including a review of his capability and general adaptability, the candidate is passed or failed by the entire Board of Directors.

The final action of the Board is based upon the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examination.

GRADUATE TRAINING RESIDENCIES

This Board, through the Council on Medical Education and Hospitals of the American Medical Association, has approved institutions providing acceptable residencies in obstetrics and gynecology.

The American Board of Obstetrics and Gynecology has established the following requirements for its approval of a residency in a hospital department or service:

1. It is most desirable that the Chief of Service of the Department be certified by the Board, in the interests of the proper teaching of the specialty of obstetrics and gynecology. In lieu of such certification the Board will approve of individuals of recognized high professional *standing* in the specialty. At least one additional *senior member of the staff* should be similarly qualified.

2. Exceptions to the foregoing, in respect to the certified status of Chiefs of Service and others as outlined above, can be made by assent of the Committee on Residency Training, for adequate and justifiable reasons. As examples of the latter, the degree of F.A.C.S. in obstetrics-gynecology may be accepted in lieu of one of the two required certifications if the general reputation of the person concerned is known to the Committee as national or sectional in scope, or a professorial rank without certification might be acceptable.

3. In instances where the services of obstetrics-gynecology are not combined but are separate in any given hospital, the Chief of each such service seeking approval and at least one of his subordinates must be certified or otherwise qualified as outlined above. If obstetrics and gynecology are not combined in one department, approval can be granted only if arrangements are made for some degree of rotation of residents between both services, provided both services are separately approved.

4. If gynecology is classified in the given hospital as a subdivision or subservice of general surgery, approval cannot be granted for residency training in gynecology. Exceptions have been made if the subdivision of Gynecology is headed and staffed by a Chief and at least one other certified by this Board or otherwise qualified as specialists in obstetrics-gynecology, as specified above, thus ensuring an acceptable educational program in obstetrics-gynecology.

5. Departments holding official approvals for residency training are cautioned that their totals of residents appointed must be kept to the number specified in the American Medical Association–American Board approval notification. Dilution of training facilities by unauthorized appointment of residents in excess of these numbers may be cause for reinspection and changes in approval status of such hospitals and their special services.

6. For further details of requirements and qualifications for approval for residency training, hospital officials should refer to the latest special issues of THE JOURNAL of the American Medical Association as they appear during each year, dealing with these subjects, or should apply to the Council on Medical Education and Hospitals of the American Medical Association for bulletins entitled Essentials of Approved Residencies and Fellowships.

7. Application for residency approval must be made in triplicate on special forms provided for this purpose. These forms may be obtained from the Secretary of the Council on Medical Education and Hospitals of the American Medical Association. All statements amplifying an application should also be made in triplicate. The hospital should keep a duplicate of all papers.

8. The formal application, with all papers, for residency training approval should be submitted primarily to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois. Action is taken jointly by the Council and this Board after survey by the Council.

9. Approvals are granted according to adequacy of the training program and teaching facilities of various institutions on the following several bases: (a) one-year approval in obstetrics and gynecology (combined) or one-year approval in obstetrics and/or in gynecology (separate), correlated basic science instruction being an essential part of the first year; (b) two-year approval in obstetrics and gynecology (combined) or two-year approval in obstetrics and/or in gynecology (separate), provided there is opportunity in the latter instances for some degree of rotation between the two services as well as laboratory instruction in basic sciences; (c) three-year approval in obstetrics and gynecology (combined) or in obstetrics or in gynecology, provided there is opportunity for one to one and one-half years' service in the branch of the specialty opposite to that in which the candidate holds appointment, as well as laboratory instruction in the basic sciences of both branches.

Exchange residencies within the specialty between approved institutions are acceptable and to be encouraged. Many authorities believe that training in more than one institution is broadening to the candidate. "Farming out" to unapproved institutions or services is not acceptable unless the work of such services is directly and carefully supervised by the Chiefs of the service in the approved hospital under which the man is actively appointed and working. This should be attested by such Chiefs.

Exchange residencies into other specialties cannot be permitted to subtract from the minimal required *three* (3) years of training divided between obstetrics-gynecology.

Two (2) years of post-training practice limited to the specialty is necessary before a candidate may apply for examination.

This Board has no objection to residency services being arranged by hospitals for periods longer than three (3) years, unless this dilutes the candidate's clinical training opportunities too much during the first three (3) years. However, the Board does not accept a fourth year, or more, of residency training as a substitute for any part of the required two (2) years of post-training practice.

The importance of post-training practice in the specialty is emphasized as an opportunity for maturing of the candidate and for colleague appraisal of a man's ability when working on his own responsibility in his chosen community.

Exception to this ruling may be made for men advancing from their training into and planning to remain in full-time teaching positions. These men then must complete at least two (2) years in such positions. Consequently the only institutions in which men may work as fourth and fifth-year residents and obtain credit for this time as "post-training practice" are those directly affiliated with approved schools of medicine as teaching hospitals for undergraduate instruction. These "full-time" men must hold faculty appointments, must have teaching duties with undergraduate students, must be given independent authority more than that of residents, and must make a declaration of intention to remain in full-time teaching work.

10. Any physician formally obligating himself to serve a residency in a Council on Medical Education and Hospitals of the American Medical Association–American Board of Obstetrics and Gynecology approved hospital and thereby eliminating other possible candidates from the position, who breaks his contract without justifiable cause, either before beginning his service or during his period of service, except by mutual consent and agreement between the candidate and the hospital, may be barred from the examinations for certification at the discretion of the Board.

11. It should be recalled by all concerned that credits for graduate training may be obtainable in certain instances for residency or assistantship service in hospitals not officially approved for residency training. Each such case must be individually considered, and credits will be largely dependent upon the teaching qualifications of those in charge of the service, and the clinical facilities of the hospital in question.

PRECEPTORSHIP TRAINING

After July 1, 1958, the initiation of Preceptorship Training must be preceded by two (2) years of formal training in an institution approved for residencies in obstetrics and/or gynecology. Candidates who propose Preceptorship Training must notify the Secretary of the Board of such intent and request an application form. When this has been completed, signed by the Preceptor and Preceptee and returned to the Secretary, it will be submitted (as has long been true of Residency Training Programs) to the Residency Training Committee of the Board for their decision.

If the program is approved the Preceptor must supervise closely the candidate's work and keep an informative record of the candidate's performance. The Preceptor and the Preceptee shall report in writing to the Secretary of the Board at the end of each six months of Preceptorship, outlining the progress of the training program. This information will be placed in the candidate's application for admission to examination in order that it may be evaluated by the Credentials Committee.

As a general rule each year of Preceptor Training will receive a six month's credit toward the total of three years of training necessary for admission to examination. As is the case with candidates whose training has been entirely by formal residency, each application will be evaluated finally by the Credentials Committee.

An acceptable Preceptor preferably shall be one certified by the American Board of Obstetrics and Gynecology and must have been certified for a minimum of five years. Fellowship in the American College of Surgeons or long experience and established reputation as an [illegible] out either of the above qualificati

Preceptor and Preceptee must work in a hospital approved by the Joint Commission on Accreditation of Hospitals.

The post-training practice requirement cannot be carried on concurrently with Preceptorship Training.

AMERICAN BOARD OF OPHTHALMOLOGY

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Miss Lea M. Stelzer, Registrar, 56 Ivie Rd.,
Cape Cottage, Maine

PREREQUISITES

1. High ethical and professional standing.

2. Full citizenship in the country where the candidate practices. (Limited to countries of North and South America, their possessions and territories, and the Philippine Republic.)

3. A degree from a medical school of high standing, satisfactory to the board and approved by the Council on Medical Education and Hospitals of the American Medical Association. An applicant whose training has been received outside of the United States and Canada must present credentials satisfactory to the board and is required to have the certificate of the National Board of Medical Examiners if he has been in practice less than 10 years.

4. Completion of an internship of not less than one year in a hospital approved by the same Council.

5. Completion, by the time of the written qualifying test, of not less than 36 months (a total of 60 months is required of candidates practicing both ophthalmology and otolaryngology) of combined study, training, and practice of ophthalmology in approved medical schools, hospitals, clinics, dispensaries, laboratories, preceptorships, and private practice.

6. Effective January 1, 1957:

(a) Licensure in the state, province, or country where the candidate practices.

(b) Individuals who have completed three years of formal ophthalmological training (residency and basic science courses) will be eligible to apply for the written qualifying test after completion of one year of practice or of one year of institutional work. All other individuals (with less formal training) will be eligible to apply for the written test after 60 months in ophthalmology or 72 months of combined ophthalmology and otolaryngology. A basic course is recognized as equivalent in time to residency training.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

1. Application forms must be filled out completely and accurately. Letters of endorsement, together with any other required credentials, must be sent to the secretary's office before the deadline date.
2. Fee of $100 remitted with application.
3. A list of papers or books published.
4. Written qualifying test.
5. Practical examination.
6. Special review of ophthalmic surgery.
7. Licensure in the State, Province or country where the candidate practices.

FEES

For original written test, $100.00, payable with application.

For original clinical examination, $50.00, payable on successful completion of the written.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY

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m W. Banks, Secretary-Treasurer, 116 S. Michigan Ave.,
Chicago 3, Ill.

GENERAL ELIGIBILITY REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.

2. Graduation with a degree of doctor of medicine from a dical school of the United States or Canada recognized by Council on Medical Education and Hospitals of the Amern Medical Association, or graduation from a foreign school the approved list of the aforementioned Council.

3. Completion of an internship of not less than one year a hospital approved at that time by the Council on Medical lucation and Hospitals of the American Medical Association , if trained in foreign countries, in institutions considered tisfactory by the American Board of Orthopaedic Surgery.

4. Completion of one year of resident training in general gery in a hospital approved by the Council on Medical Edution and Hospitals of the American Medical Association or bstitute training in general surgery considered satisfactory by e American Board of Orthopaedic Surgery. The minimum one year of training in general surgery is in addition to e minimum of one year of internship. This requirement may fulfilled by substituting a second year of internship, by time ent in research, by time spent on a service in which there an overlap of interest with orthopaedic surgery, by a fourth ar of approved orthopaedic resident training, or by surgical ork in private or military life.

5. Completion of formal requirements for part 1 or part 2 aminations. These formal requirements can be satisfied only y resident orthopaedic training.

Applicants may not be admitted to examinations, or be cerfied, on the basis of extensive specialized practice and/or aching appointments and/or many short unapproved courses.

6. Restriction of practice to orthopaedic surgery.

REQUIREMENTS FOR PART 1 EXAMINATIONS

1. Completion of and compliance with aforementioned genral eligibility requirements.

2. Citizenship in the United States or Canada, or possession f citizenship papers showing intent to become a full citizen.

3. Following completion of a year of internship, satisfactory ompletion of a minimum of one year of general surgical traing, or its substitute, plus (a) two years of approved training n orthopaedic surgery under a program of resident training.

4. Evidence of competence in training.

5. Approval for examination by the committee on eligibility of the American Board of Orthopaedic Surgery.

REQUIREMENTS FOR PART 2 EXAMINATIONS

1. Successful completion of part 1 examinations.

2. Full citizenship in the United States or Canada.

3. License to practice in the United States or Canada.

4. Satisfactory completion of a minimum of three years of approved resident training in orthopaedic surgery, plus a minimum of two subsequent years of practice period.

5. Evidence of competence in practice.

6. Approval for examination by the committee on eligibility of the American Board of Orthopaedic Surgery.

APPLICATION AND EXAMINATION FEE SCHEDULE

1. Application for part 1, fee $15, not returnable.

2. Examination, part 1, fee $35, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

3. Application for part 2, fee $15, not returnable.

4. Examination, part 2, fee $50, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

APPLICATIONS

1. Applications for part 1 examinations must be received in the office of the secretary of the board before November 30 of the year preceding the examinations.

2. Applications for part 2 examinations must be received in the office of the secretary of the board before August 15 of the year preceding the examinations.

3. Notices of acceptance for admission to the part 1 examinations are mailed to eligible candidates during the month of February in the year of the examinations.

4. Notices of acceptance for admission to part 2 examinations are mailed to eligible candidates during the month of November in the year preceding the examinations.

5. Questions of eligibility for examinations are decided by the committee on eligibility of the board. This committee meets twice yearly. The secretary is not empowered to rule on questions of eligibility.

6. The life of an application is three years. After this time a new application and application fee must be submitted.

EXAMINATIONS

1. Part 1 examinations are held once yearly, usually in April or May, in various centers in the United States.

2. Part 2 examinations are held once yearly, usually in one center, immediately preceding the meeting of the American Academy of Orthopaedic Surgeons.

3. The locations and dates of coming examinations are announced in The Journal of the American Medical Association and the *Journal of Bone and Joint Surgery.*

CERTIFICATION

1. Applicants who successfully pass part 1 examinations will receive no certificate but will be notified by letter by the secretary.

2. Applicants who successfully pass part 2 examinations receive a certificate of the board, which states that they have been found qualified to practice the specialty of orthopaedic surgery in those fields in which they have been trained and examined.

3. Candidates obtaining certification without training and examination in children's orthopaedic surgery may subsequently add certification in children's orthopaedic surgery by completing a minimum of one year of approved resident orthopaedic training in children's orthopaedic surgery and successfully passing examination in that field. A practice period of one year is required following completion of resident training, prior to examination for additional certification.

APPROVED RESIDENCIES

1. In the United States, resident training must be taken in institutions approved for resident training in orthopaedic surgery by the Council on Medical Education and Hospitals of the American Medical Association. All approved institutions are listed yearly in the Internship and Residency Number of The Journal. Lists may be obtained from the American Medical Association and are not obtainable from the board.

2. The integral parts of approved residencies are designated in lists by the following symbols: A—adult orthopaedic surgery; C—children's orthopaedic surgery; F—fracture surgery; and S—basic science training. Approved length of training in institutions is also designated.

3. Candidates electing an additional year of training in adult orthopaedic surgery and fracture surgery in lieu of a year in children's orthopaedic surgery may satisfy requirements by continuing their training beyond the designated approved length of time in institutions appoved for adult orthopaedic surgery or adult orthopaedic surgery and fractures.

4. Credit for resident training is not retroactive. Candidates must receive resident training in institutions during periods that such institutions are on the approved list. If candidates are in training at institutions at the time that such institutions become approved, resident training credit may be granted from the start of the training period provided that the program is judged to have been satisfactory.

5. Candidates in resident training, or possessing signed contracts for future resident training in institutions which become disapproved, either in whole or part, receive resident training credit for the entire period during which their contracts are in force.

6. The term "fellow" is considered synonymous with "resident" when the position occupied and the work performed is equal in all functions. Fellowships in institutions having residents, in which training and responsibilities are not equal, are not credited as resident training.

7. Institutions approved for resident training in orthopaedic surgery by the Council on Medical Education and Hospitals of the American Medical Association may, with prior acceptance by the American Board of Orthopaedic Surgery and notification to the Council, utilize the training facilities of institutions not individually approved for resident training by the aforementioned Council, provided that: (a) the training supplements services in the same categories in which the institution responsible for training is approved by the Council, (b) the resident spends at least half of the minimum required time in each category of training in institutions approved by the Council.

8. Foreign residencies must satisfy the American Board of Orthopaedic Surgery.

9. Application for approval of the training facilities of any institution must be made to the Council on Medical Education and Hospitals of the American Medical Association, and inspection of such facilities is made by representatives of the Council. Final approval is a joint function of the Council and the American Board of Orthopaedic Surgery.

REQUIREMENTS OF RESIDENT ORTHOPAEDIC TRAINING

1. Institutions approved for full three year programs including all parts of the training requirements may integrate all parts so that they are given concurrently.

2. Institutions now approved for less than three years of orthopaedic resident training should arrange with other approved institutions to provide complete three year programs for all residents.

3. The minimum requirements of resident orthopaedic training are as follows: (a) one year of training in adult orthopaedic surgery, (b) six months of training in the basic sciences, (c) six months of training in fracture surgery, and (d) one year of training in children's orthopaedic surgery or, if elected, an additional year of training in adult orthopaedic surgery and fracture training in place of training in children's orthopaedic surgery.

4. Candidates who elect an additional year of training in adult orthopaedic and fracture surgery instead of a year in children's orthopaedic surgery may satisfy the requirements by taking the additional year of training in adult orthopaedic surgery or six months of adult orthopaedic surgery and six months of fracture surgery, but may not take the entire year of training in fracture surgery.

5. Training in adult and children's orthopaedic surgery must include observation and firsthand experience in diagnosis treatmet, operative and postoperative care of orthopaedic problems.

6. Training in fracture surgery must include observation and firsthand experience in diagnosis, treatment, operative and postoperative care of recent and old fractures.

7. Training in the basic sciences must instill a sound knowledge of anatomy, pathology, physiology, bacteriology, and biochemistry as these basic sciences apply to orthopaedic surgery.

8. Candidates may complete the training requirements by training in several approved institutions provided that all the aforementioned minimum requirements are satisfied on approved services.

9. No training period of less than six consecutive months in one institution may be credited toward resident training requirements, except a few short courses on the board's approved list and recognized supplementary services of approved institutions.

10. Candidates in resident training may not engage in private practice.

11. Candidates in resident orthopaedic training must receive their training in institutions and may not receive credit for time spent assisting in private office practice.

SEQUENCE OF EXAMINATIONS AND PRACTICE REQUIREMENTS

1. No person may take part 2 examinations until after successful completion of part 1 examinations.

2. Successful completion of part 1 examinations in no way obligates the board to declare a candidate eligible for part 2 examinations.

3. Regardless of how extensive or prolonged a practice a candidate may have had prior to completing the training requirements, such time may not be credited toward practice requirements. All practice requirements must be satisfied subsequent to completion of training requirements

4. Candidates may not be admitted to examinations on the basis of prolonged practice but must qualify on the basis of formal training.

PRACTICE REQUIREMENTS

1. Candidates must maintain high ethical and professional standards.

2. Candidates must strive to increase their scientific knowledge.

3. Candidates must limit their practice to orthopaedic surgery.

4. Candidates who have had no approved training in children's orthopaedic surgery must confine their practice to fracture and adult orthopaedic surgery.

5. Candidates trained in resident orthopaedic training are required to complete a minimum of two years of orthopaedic practice subsequent to the completion of their formal training before becoming eligible for part 2 examinations

6. Candidates in private or institutional practice must spend a minimum of 14 months in one locality immediately prior to application in order that practice may be properly evaluated

7. Candidates employed full time in institutions may satisfy practice requirements by serving a minimum of two years, but minimum requirements may not be satisfied by mixing full-time institutional work with preceding or subsequent time in private practice.

METHOD OF EXAMINATION

1. Part 1 examinations consist of a written examination and oral examinations. Material covered includes fundamental surgical principles, elementary fracture and orthopaedic procedures, history-taking, and physical examinations as well as those parts of anatomy, pathology, physiology, and biochemistry related to orthopaedic surgery. The oral examinations consist of five parts: (a) anatomy, (b) pathology, (c) physiology and biochemistry, (d) surgery, and (e) fractures and orthopaedic surgery.

2. Part 2 examinations consist of a written examination and oral examinations Material covered includes advanced work in all phases of orthopaedic surgery. The oral examinations consist of five parts: (a) anatomy, (b) pathology, (c) children's orthopaedic surgery, (d) fractures, and (e) adult orthopaedic surgery.

3. Candidates who have not had approved training in children's orthopaedic surgery will not be examined in that branch of orthopaedic surgery.

4. Candidates are notified by letter as to whether they passed or failed in the examinations. No information regarding results is available until such letters are mailed.

5. Results of integral parts of examinations are not available to either candidates or diplomates of the board.

6. Candidates who have passed part 1 examinations are required to take part 2 examinations within a 10 year subsequent period. If there is a lapse of more than 10 years, candidates must repeat part 1 examinations and must then become eligible by the requirements then in force.

MILITARY SERVICE

1. Medical officers who have elected service in the military forces as their life careers compete for certification on the same basis as do physicians in civilian practice.

2. Physicians who served for a minimum of one year in the military forces during the war years, between Jan. 1, 1941, and July 1, 1946, are granted a bonus of one year of practice credit, provided that the same time is not used for resident training credit.

3. Applicants who served in military hospitals whose service judged by the board to have been equal to that of approved sident orthopaedic training may be granted a maximum credit one year of resident orthopaedic training. Applicants request- ıg such credit must submit completed "Professional Training ecords."

4. No applicant may be granted more than one year of resi- ent training credit and one year of practice credit for military ervice during the war years.

5. Medical officers assigned to civilian institutions on the pproved list for resident orthopaedic training receive the same redit as do civilian candidates.

6. Medical officers who have elected service in the military orces as their life careers must satisfy the practice requirements y military assignments in which their duties are limited to the ractice of orthopaedic surgery.

RECORDS OF SURGICAL CASES AND INSPECTIONS

1. Records of a specified number of consecutive surgical cases nay be requested by the board in order to evaluate properly he work of an applicant.

2. A representative of the board may visit a community in rder to evaluate properly the work of an applicant.

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GENERAL REQUIREMENTS

The following general qualifications of candidates for examination are required by the board:

1. A candidate must have been a graduate for five years or more of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. A candidate must be of known good moral character and be ethical in his professional relationships.

3. A candidate trained in a foreign country must be able to give proof of medical and graduate training comparable to the requirements of the board.

4. A candidate from the United States or the Dominion of Canada must be a member of the American Medical Association or of the Canadian Medical Association respectively or other such medical societies of equal standing as are recognized by the Council on Medical Education and Hospitals of the American Medical Association.

5. Candidates from foreign countries who have received their training in otolaryngology in the United States and the Dominion of Canada are eligible for examination at the discretion of the American Board of Otolaryngology, provided they meet the general academic requirements of the Board.

SPECIAL REQUIREMENTS

1. A candidate must have had a general internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. A candidate must be proficient in the applied basic sciences, fundamental to the intelligent practice of otolaryngology. These include anatomy of the ear, nose, and throat, neck, chest, esophagus and nervous system, gross pathology and histopathology, bacteriology, physiology, didactic otolaryngology and the general fundamentals of surgery. (This requirement may be fulfilled in a residency or fellowship service or in an approved organized post-graduate course.)

3. In addition to the general internship, the required clinical training in otolaryngology may have been acquired in any of the following ways:

(a) A three years' residency or fellowship in otolaryngology approved by the Council on Medical Education and Hospitals of the American Medical Association.

(b) A four years' approved residency or fellowship in otolaryngology and ophthalmology provided one half of the training has been in otolaryngology.

(c) A two years' approved residency or fellowship in otolaryngology or a three years' approved combined residency or fellowship in otolaryngology and ophthalmology, provided two years have been in otolaryngology and have been preceded by at least one year's approved residency training in surgery or medicine, or by an additional year in an approved internship.*

4. In exceptional circumstances certain candidates who do not meet all of the above requirements may be accepted for examination on recommendation of the credentials committee, substantiated by action of the board.

5. At least one year must be spent in private, group, or institutional practice of otolaryngology after the period of special training. This requirement may be waived in cases of candidates from foreign countries who are returning there for the practice of otolaryngology. Should such a candidate pass the examination the certificate of the board will be withheld until the board has been furnished evidence that the candidate has spent one year in the practice of otolaryngology. (When the requirement of an additional year referred to in No. 5 may impose handicaps as to rating, in the Military or Veterans Administration Services. the candidate may be considered under No. 4 above.)

6. A candidate may be qualified for examination, at the discretion of the American Board of Otolaryngology, if in addition to the General Requirements and Special Requirements, No. 1 and 2, he has limited his practice to otolaryngology for seven years in association with a hospital staff approved by the Council on Medical Education and Hospitals of the American Medical Association.

7. A physician who limits himself exclusively to the practice of peroral endoscopy may be granted limited certification in this field by the American Board of Otolaryngology irrespective of certification in any other specialty. Limited certification will be granted provided the candidate has spent not less than one year of training in a hospital approved for endoscopic teaching and has passed successfully examinations in the basic sciences as they pertain to this field, and didactic and clinical examinations covering diseases of the larynx, pharynx, neck, esophagus, stomach, tracheobronchial tree, lungs and mediastinum and certain aspects of cardiovascular disease as they pertain to peroral endoscopy. A limited certificate by the American Board of Otolaryngology will not be issued to physicians who have been certified in a specialty that employs peroral endoscopy in diagnosis and/or treatment because his major interest is in that specialty, not in endoscopy.

All candidates must comply with current board regulations, regardless of the time of filing application.

APPLICATION AND FEES

1. Application must be made in duplicate on special blanks procured from the secretary. The completed application blanks must be returned to the secretary, together with the other required credentials, at least 120 days in advance of the examination at which the candidate desires to appear.

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*See Standards for Residencies in Otolaryngology published by the American Medi[illegible]Association.

2. The applications must be accompanied by two small photographs of the candidate, together with verification of the period of enrollment from the institutions where training in otolaryngology was obtained, and the names of two or more otolaryngologists, preferably diplomates of the board, from the vicinity of the candidate's place of residency, to be used as references.

3. The fee for the examination is $150. Of this sum $75 must accompany the application, of which $50 shall be returned if candidate is not accepted for examination. No application will be acted on until the $75 application fee is received. The remaining $75 of the total examination fee of $150 must be paid to the secretary on notification that the candidate has been accepted.

4. The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expense.

5. The application remains valid for three years. An applicant must appear for examination within this time or forfeit the fee.

6. Candidates whose credentials have been found satisfactory and who meet the requirements of the board will be notified 90 days prior to the date of examination. The number of candidates who can be admitted to any one examination is limited. Due to a large number of applications on file, delay in assignment for examination may be inevitable. Appointments will be given in the order applications are accepted and on payment of the balance of the examination fee.

7. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

EXAMINATION

Examinations will be held at such time and place as the judgment of the board may dictate. Advance notice of examinations will be given in THE JOURNAL of the American Medical Association and the several special journals devoted to otolaryngology. Insofar as is possible these will be held biannually at, or near, the time and place of meeting of the American Medical Association, or special societies, and of the American Academy of Ophthalmology and Otolaryngology. The examinations cover from two to four days.

Scope.—This examination encompasses all phases of otolaryngology and peroral endoscopy, including maxillofacial surgery, and surgery of the neck, excluding the thyroid.

The type of examination is as follows:

1. Clinical, covering the actual handling of patients, including history-taking, physical and functional examinations, the use of laboratory and x-ray findings, and a discussion of differential diagnosis.
2. Didactic, oral examinations covering all phases of otolaryngology.
3. Gross and microscopic pathology.
4. A written examination may be included when the board deems this advisable.

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GENERAL REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.
2. License to practice medicine or a certificate of the National Board of Medical Examiners.
3. The applicant must devote his time primarily and principally to the practice of pathology.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from medical schools in other countries acceptable to the board.

SPECIAL TRAINING AND EXPERIENCE

1. The board admits candidates to examinations who are otherwise eligible and who have had either of two following types of training and experience.

(a) After five years, if four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board; or

(b) After 11 years if none of the training and experience has been in institutions so approved.

2. The specific requirements for those acceptable after five years are as follows:

(a) Pathological anatomy only.

(1) Four years of supervised study and training in an institution approved for residency training in pathological anatomy by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. In addition time, not to exceed 12 months, spent in a department of pathology of an approved school of medicine after the completion of the second year of undergraduate study may be counted for full credit toward the four years.

(2) One additional year, which may be a continuation the preceding or may be independent practice of pathologic anatomy in a hospital approved by the American Medic Association or other institutions acceptable to the board.

(b) Clinical pathology only.

(1) Four years of supervised study and training in an in tution approved for residency training in clinical pathology the Council on Medical Education and Hospitals of the Am can Medical Association or by the board. It is immate whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship, in any of the preclinical departments of a university, for one of the four years. Candidates holding also a master's or doctor's degree in a special field of clinical pathology (bacteriology, serology, chemistry, parasitology, or hematology) may obtain time credit for not more than 12 to 24 months toward the four years for this work, regardless of whether it was taken before or after the medical degree. The evaluation of time credit will depend on how much of the broad field of clinical pathology was covered in the graduate work.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(c) Pathological anatomy and clinical pathology.

(1) Four years of supervised study and training divided as follows: (a) two years of supervised study and training in pathological anatomy as outlined in the preceding paragraph 2-(a)-(1), (b) two years of supervised study and training in clinical pathology as outlined in the preceding paragraph 2-(b)-(1). Candidates declared eligible before July 1, 1953, may, at their own election, substitute one year (twelve months) of a straight or rotating clinical internship for one year of this special training in clinical pathology. After July 1, 1953, all candidates applying for both pathological anatomy and clinical pathology will be required to have two years of supervised training in clinical pathology.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of both pathological anatomy and clinical pathology in a hospital approved

the American Medical Association or other institutions eptable to the board. After July 1, 1953, candidates who ct to claim credit for one year for a clinical internship must e this fifth year as supervised study and training in clinical thology in institutions approved for residency training in nical pathology by the Council on Medical Education and spitals of the American Medical Association or by the board. ndidates declared eligible after July 1, 1953, who do not e a clinical internship, may, after four years of training as tlined in 2-(1)-(a) and (b), spend the fifth year in independent practice in an institution or laboratory acceptable to e board.

Note: As outlined in the preceding paragraphs, the total e requirements of the board are unchanged after July 1, 53, namely, five years of study or practice after graduation m medical school, with exceptions noted in sections 2-(a)-) and 2-(b)-(1).

3. The specific requirements for those acceptable after 11 ars are as follows: (a) The practice of pathology under cumstances acceptable to the board for a period of not less an 11 years. At the election of the candidates, a period not exceed one year of straight or rotating clinical internship ay be substituted for one of the 11 years. For those candiates in this category who have had some special study and aining in pathologic anatomy or clinical pathology acceptable pervised study and training, only seven years of practice are quired.

CREDIT FOR MILITARY SERVICE

Credit may be allowed for training and experience in patholgy in the federal services during the period July 1, 1940, to ne 30, 1947. This credit for training or experience or both is ven on an individual basis and will depend on the opportunity e applicant has had, as indicated by his or her medical service cord in the specialty of pathology.

After July 1, 1947, credit for those military services will be ven on the same basis as it is in civilian institutions, except at the rule in the preceding paragraph will not apply to serve officers who continue on active duty or are called to tive duty after that date.

PECIAL FIELDS OF PATHOLOGY, CLINICAL CHEMISTRY, CLINICAL MICROBIOLOGY, HEMATOLOGY, AND NEUROPATHOLOGY

(IN FORCE AFTER JULY 1, 1954)

The trustees of the American Board of Pathology have dopted the following requirements for certification in special elds of pathology, effective July 1, 1954.

Candidates who have met all general requirements and have ad special training and experience that is acceptable to the oard in a special field of pathological anatomy or clinical athology may apply to the board for certification in that pecial field. The board, at its discretion, may approve this pplication, and after the candidate has successfully passed a rescribed examination or has fulfilled certain special qualifications (see below, section D), will issue a certificate designating he special field.

A. General Qualifications:

1. Satisfactory moral and ethical standing in the profession.
2. License to practice medicine or a certificate of the National Board of Medical Examiners.
3. The applicant must devote his time primarily and principally to the practice of pathology or the special field of patholgy in which he is requesting certification.

B. Professional Education:

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association or graduation from a medical school in other countries acceptable to the board.

C. Special Training and Experience:

The board admits candidates to examination in special fields of pathology who are otherwise eligible and who have had either of the following types of training:

1. Applicants already holding a certificate of the board in clinical pathology or the combined certificate in pathological anatomy and clinical pathology (for qualification in clinical chemistry, clinical microbiology, and hematology), or in pathological anatomy (for qualification in neuropathology)—two additional years of supervised training in the special field of their choice in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board.
2. Applicants not holding a certificate in pathological anatomy or clinical pathology—five years of training in the special field of their choice, provided four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. The fifth year may be a continuation of supervised training or may be independent practice of the particular specialty in a hospital approved by the American Medical Association or in other institutions acceptable to the board.

D. Special Qualifications—Certification Without Examination:

Prior to Jan. 1, 1960, the board at its discretion may certify candidates without examination if the following conditions have been met as of Jan. 1, 1955:

1. That the candidate has been for a period of five years of professorial rank in the special field of his choice and in an approved medical school, or
2. That the candidate has been practicing his specialty for 10 years in a senior position in a hospital having an adequate department in the special field, approved by the Council on Medical Education and Hospitals of the American Medical Association, or in an institution acceptable to the board.

APPLICATION BLANK AND FEE

Application must be made on the special form that may be procured from the secretary and forwarded with other required credentials and the application fee. An application cannot be given consideration by the board unless it is accompanied by the application fee.

The application or examination fee for candidates is $100. If the candidate fails in his examination he will be admitted to a second examination after one year. The applicant must pay an additional fee of $50 before a second examination will be given.

The application fee of $100 has been determined after careful consideration and is based on actual estimates of the expenses of examination and administration. None of the board members receives any compensation for his services except actual expenses incurred.

If the applicant, for any reason, is deemed ineligible for examination by the board, his fee will be returned; however, the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the examination.

EXAMINATIONS

Written and oral examinations will be held at the discretion of the board at or near the time and place of national medical meetings. If a number of applications from any region of the country are received, an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible.

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis, interpretation and technique. The applicant may apply for certification in either pathological anatomy or clinical pathology or both.

The examinations in pathological anatomy consist of a written test, an oral examination on gross pathology, and a practical examination in microscopic pathology. The examination in clinical pathology consists of a written test and an oral and practical examination in the six phases of clinical pathology: bacteriology, hematology, clinical chemistry, parasitology, serology, and clinical microscopy.

DEFINITIONS

1. Pathological anatomy is that branch of pathology that deals with the morphological aspects of disease, recognition being given that that definition covers two phases of pathology: (a) the applied phase with special attention to the description and diagnosis of gross and microscopic specimens, (b) the academic phases of teaching and general morphological diagnosis.

2. Clinical pathology is that branch of pathology that deals with bacteriology, immunology, clinical chemistry, parasitology, hematology, endocrinology, clinical microscopy, and the application of the physical and biological sciences to the diagnosis, prognosis, and treatment of disease.

CRITERIA FOR APPROVAL OF INSTITUTIONS FOR TRAINING IN PATHOLOGY

In Sections C-2-a, C-2-b, and C-2-c of the General Requirements, it is stated that candidates must have certain periods of supervised study and training. The American Board of Pathology, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, certifies hospitals in the United States as satisfactory for this supervised study and training. Lists of these hospitals are published in the Internship and Residency Number of The Journal of the American Medical Association each year. In addition, the American Board of Pathology recognizes certain hospitals outside the United States and certain laboratories not connected with hospitals in the United States. Inquiries concerning these should be directed to the secretary of the board.

The general criteria for approval of hospitals and laboratories are both qualitative and quantitative. On the score of quality, consideration is given to the qualifications of the director of laboratories and in the associates and assistants, the supervision of work of the person in training, the excellence of the educational program, and the exactness and completeness of the laboratory work performed. On the score of quantity, consideration is given to the volume and distribution of laboratory work, both in absolute numbers and in relation to the size of the hospital, to the diversity and completeness of tests performed, to the size and equipment of the laboratory, and to the number of professional and nonprofessional personnel in relation to the volume of work.

In general, the qualitative standards will determine whether or not a hospital or laboratory is approved and the quantitative standards will determine whether the approval is for one, two, three, or four years of credit toward the requirements of the board.

In evaluation of applications the board takes into consideration the following criteria:

1. Director of laboratories or pathologist:

(a) It is required that the responsible head of the laboratory hold the certificate of the American Board of Pathology in the subject for which the hospital is approved, or be eligible for certification, and that he or she spend full time in the hospital. *Full time is not interpreted in terms of hours, but* rather that the director have no obligation outside the one approved hospital except in a university department of pathology in which he and the residents have an opportunity to participate in the educational program;

(b) In special instances, the equivalent of full time by two or more qualified persons will be accepted and one person need not spend the entire working day in the laboratory;

(c) In special instances, two or more hospitals will be approved as a unit with a single full-time director of laboratories if it is apparent that a satisfactory training program can be conducted;

(d) In hospitals with over 350 beds, it is expected that the professional staff, in addition to the pathologist, will include one or more persons with special training and qualifications in the sub-specialties of clinical pathology.

2. Technicians:

There are no absolute criteria, but it is expected that the number of technicians will be proportional to the volume of laboratory work and that, insofar as possible, the technicians will hold the certificate of the Registry of Medical Technologists of the American Society of Clinical Pathologists.

3. Floor space of laboratory:

In general, it is believed that the size of the laboratory should be related to the size of the hospital and the volume of laboratory work. A minimal ratio is 4 square feet of space in the laboratory, including morgue and autopsy room, for each bed in the hospital.

4. Equipment for the laboratory:

The variety and completeness of laboratory tests performed depend on the size of the hospital. In all hospitals there should be facilities for the more common test in clinical pathology, for study of surgical specimens, and for performance of autopsies. In larger hospitals, the variety of tests performed should be larger, and in hospitals with over 500 beds all recognized laboratory procedures should be available for study and treatment of the patients.

5. Autopsy percentage:

No institution with a percentage of less than 15 will be approved, and those institutions with percentages between 15 and 40 will be given special scrutiny.

6. Examination of surgical specimens:

All surgical specimens should be sent to the laboratory for gross examination, and microscopic examinations should be made unless there are general or special reasons not to do so.

7. Indices:

There should be indices according to the names of the patients and the diagnoses of all surgical and autopsy material. Indices of clinical pathology are left to the discretion of the hospital.

8. Museum:

There should be available fixed anatomic and pathological specimens for study by the staff in proportion to the size of the hospital. Properly filed and indexed color photographs may in part be substituted for museum specimens.

9. Library:

A reasonable complete library of modern books and recent unbound and bound journals should be available to the hospital and the more commonly used books and journals should be on hand in the laboratory.

10. Education program:

The work of the person in training should be supervised. Conferences, seminars, journal clubs, and demonstrations should be conducted as frequently as the volume of material and the size of the staff justifies. A clinicopathological conference must be held at least every two weeks.

11. Volume of laboratory work:

(a) As indicated in the following categories, no hospitals with less than 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology annually will be approved (Category D), except as outlined in the following paragraphs. It is the belief of the board that less material than this is inadequate for the training of a pathologist.

(b) In the field of clinical pathology, there should be a reasonable diversification of tests, and in each category there should be sufficient absolute volume to provide training and experience. There are no absolute criteria, but special scrutiny will be given to a hospital in which there is not a reasonable diversification and variety.

(c) In the field of pathological anatomy, a deficiency in either autopsies or surgical specimens may be made up by an excess of the other, if the deficiency does not exceed 20% of the minimum required in the ratio of one autopsy to 75 surgical specimens. Thus in a hospital approved for one year in pathological anatomy and clinical pathology, the minimums are 75 autopsies and 1,000 surgical specimens. If a hospital has 2,500 surgical specimens, it is acceptable if there are only 60 autopsies.

If a hospital has met these minimal qualitative and quantitative standards, it will then, on the basis of the following quantitative standards, be approved for one, two, three, or four years of training in pathological anatomy, or clinical pathology, or both, or some special field as shown for the number of residents indicated.

Category A. In both pathological anatomy and clinical pathology for four years (as required of all candidates seeking certification in both fields who are examined after July 1, 1952).

Minimum: 150 autopsies, 1,750 surgical specimens, and 65,000 tests in clinical pathology for four residents. Additional resident for each 50 autopsies or 500 surgical specimens, or 20,000 tests in clinical pathology.

Category B. In both pathological anatomy and clinical pathology for three years. This meets all requirements of the board for supervised training until July 1, 1952. Candidates examined after that date who seek certification in both subjects must take an additional year of supervised training in clinical pathology or pathological anatomy in another hospital that is approved for the deficiency of training required.

Minimum: 125 autopsies, 1,500 surgical specimens, and 0,000 tests in clinical pathology for three residents. Additional esident for each 50 autopsies, 500 surgical specimens, or 0,000 tests in clinical pathology.

Category C. In both pathological anatomy and clinical pathology for two years. Candidates taking two years in these nstitutions must have an additional year (two years after July 1, 1952) in an institution in category A, B, or D.

Minimum: 100 autopsies, 1,250 surgical specimens, and 0,000 tests in clinical pathology for two residents. Additional esident for each 50 autopsies, or 500 surgical specimens or 20,000 tests in clinical pathology.

Category D. In both pathological anatomy and clinical pathology for one year. Candidates taking training in these institutions must have an additional two years (three years after July 1, 1952) in institutions that are approved for the deficiency of training required.

Minimum: 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology for one resident. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

Category E. In pathological anatomy only, for three or more years. Candidates taking all training in these institutions will not be eligible for certification in clinical pathology unless an additional year (two years after July 1, 1952) is taken in clinical pathology in institutions that are approved for the deficiency of training required.

Minimum: 175 autopsies and 1,500 surgical specimens for three residents. Additional resident for each 50 autopsies or 500 surgical specimens.

Category F. In pathological anatomy only, for two years. Candidates taking training in these institutions will not be eligible for certification in clinical pathology unless they take one additional year full time in clinical pathology (two years after July 1, 1952) in institutions that are approved for the deficiency of training required, and will be eligible in pathological anatomy only if another year is taken in another institution that is approved for one or more years in pathological anatomy.

Minimum: 125 autopsies and 1,250 surgical specimens for two residents. Additional resident for each 50 autopsies or 500 surgical specimens.

Category G. In pathological anatomy only, for one year. Candidates training in these institutions will not be eligible in both pathological anatomy and clinical pathology unless they take an additional year in pathological anatomy and an additional year (two years after July 1, 1952) in institutions that are approved for these periods of training. Candidates seeking certification in pathological anatomy only must study an additional two years in institutions that are approved for that period of training.

Minimum: 75 autopsies and 1,000 surgical specimens for one resident. Additional resident for each 50 autopsies or 500 surgical specimens.

Category H. For postmortem part of pathological anatomy for two years. Credit is never allowed for more than two years. Candidates taking training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional year in an institution in Category A, B, C, E, F, or G with assignment to surgical pathology principally. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952 in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and one-half year assigned to surgical pathology principally, in an institution in Category A, B, C, or J.

Minimum: 125 autopsies for two residents. An additional resident for each 60 autopsies.

Category I. For postmortem part of pathological anatomy for one year. Candidates taking training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional two years in an institution in Category A, B, C, E, F, or G with general assignments. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and one year to an institution in Category A, B, C, E, F, or G.

Minimum: 75 autopsies for one resident.

Category J. Surgical pathology part of pathological anatomy for one year. Credit is never allowed for more than one year and the director of the laboratory must hold the certificate of the American Board of Pathology in pathological anatomy or be eligible for certification. Candidates training in these institutions may pursue further training as follows: (1) For Pathological Anatomy only. An additional two years in an institution in Category H or in an institution in Category A, B, or C with assignment to postmortem pathology only. (2) For Pathological Anatomy and Clinical Pathology an additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology full time, and an additional year to an institution in Category A, B, D, E, F, G, or H with assignment to postmortem pathology full time.

Minimum: 2,000 surgical specimens for one resident. An additional resident for each 1,000 surgical specimens.

Category K. Special pathology as part of pathological anatomy. Credit for not to exceed one-fourth the time credit (one year if seeking certification in pathological anatomy only, six months if seeking both pathological anatomy and clinical pathology) of candidates applying in pathological anatomy may be taken in special laboratories with limited activities such as neuropathology, orthopedic pathology, ophthalmic pathology, etc. The candidate who receives credit in this category may, on request, have the field of special pathology designated on the certificate of the board.

Category L. Clinical pathology for three or more years. Candidates taking three years of training in these institutions will not be eligible for pathological anatomy unless they take an additional two years in institutions approved for pathological anatomy.

Minimum: 100,000 tests in clinical pathology for three residents. Additional resident for each 50,000 tests.

Category M. Clinical pathology for two years. Candidates taking two years' training in these institutions must take the same additional training as in Category L to be eligible for pathological anatomy also. To be eligible for clinical pathology only, an additional year of clinical pathology must be taken in an approved institution.

Minimum: 75,000 tests in clinical pathology for two residents. An additional resident for each 50,000 tests.

Category N. Clinical pathology for one pear. Candidates taking training in those institutions must take an additional two years in an institution in Category A, B, C, L, or M assigned to clinical pathology for eligibility in clinical pathology only. To be eligible in pathological anatomy and clinical pathology, an additional two years in approved institutions is required.

Minimum: 50,000 tests in clinical pathology for one resident.

Category O. Special clinical pathology as part of clinical pathology. Candidates applying for clinical pathology only may receive credit for not in excess of one-quarter of the training period (one year if seeking certification in clinical pathology only, six months if seeking both pathological anatomy and clinical pathology) for work in a special field of clinical pathology, such as bacteriology, serology, etc. Under these circumstances, on request, the special field will be designated on the certificate of the board.

Category P. Research: Residence in certain institutions in which full time is devoted to research with a direct application to the practice of pathological anatomy or clinical pathology may be accepted for credit not to exceed one-third the time requirement (20 months if no clinical internship, 16 months if a clinical internship was taken). The board encourages research and believes that all candidates should carry on investigation during their training in all institutions. Therefore, this category is only for those wishing to do full time research.

AMERICAN BOARD OF PEDIATRICS

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REQUIREMENTS FOR CERTIFICATION[*]

All candidates for examination for certification must meet the following requirements:

1. Graduation from an approved medical school.
2. Hold a license to practice in the United States prior to issuance of a certificate except in those situations in which a license to practice is not required.
3. One year of rotating, pediatric, or other internship in an approved hospital.
4. Two years of specialized residency-type training in an approved pediatric center.

At least one year of the two years of required residency training must be a full-time medical pediatric inpatient residency or internship in an approved institution. The second year of required residency training may be met in the ways listed below, although the board recommends that whenever possible candidates complete the two years as regular residents.

(a) Graduate School courses will be accepted only in exceptional cases by prior arrangement, up to a maximum of nine months.

(b) A maximum of three months' credit each is allowed for full-time residency type training in allied pediatric subjects such as pediatric allergy, pediatric psychiatry, pediatric pathology, pediatric radiology, newborn service, etc.

(c) A maximum of six months' credit is allowed for residency training in an approved contagious disease hospital.

5. A subsequent term of two years of specialized study or practice or a combination of the two.

Credit for one year toward this requirement is allowed for medical military service regardless of the assignment. The maximum credit that any candidate may receive toward the practice requirement for work done prior to the completion of residency training is one year.

Research residencies which involve little or no clinical training are creditable for only three months. Research residencies which include significant clinical training may be pro-rated to a total of six months for a year of service. Teaching fellowships may not be offered in lieu of residency appointments.

Both research residencies and teaching fellowships are, of course, entirely acceptable in satisfaction of the practice or further study requirement. Portions of a research residency not applicable for residency training credit may be carried over for practice credit.

Preceptorships are not accepted for credit toward the residency requirement, but are accepted toward the practice requirement.

GRADUATES OF MEDICAL SCHOOLS IN CANADA

Graduates of approved medical schools in Canada and those who have received their internship and residency training in pediatrics in hospitals approved by the Royal College of Physicians and Surgeons of Canada will be eligible for examination for certification under the same regulations as those trained in the United States.

GRADUATES OF FOREIGN MEDICAL SCHOOLS

Citizens of the United States.—Citizens of the United States of America who are graduates of medical schools other than those in the United States and Canada will be processed for eligibility for examination for certification if they can meet all the following requirements:

1. They are graduates of medical schools recommended by the Council on Medical Education and Hospitals of the American Medical Association.
2. They hold a license to practice in the United States.
3. They can meet the internship and residency training requirements of the board as detailed above with the following provisions:

(a) Internship and residency training must be served in hospitals approved by the board in the United States.

(b) A maximum of the internship and one year of residency training may be allowed for such experience obtained in a small list of foreign hospitals recognized by the board. The other year of residency training must be served in a straight inpatient medical pediatric residency appointment in an approved hospital in the United States.

Citizens of the United States of America who are graduates of medical schools other than those in the United States or Canada, and which are not recommended by the Council on Medical Education and Hospitals of the American Medical Association, may be accepted for examination for certification after they have passed successfully Part II of the examinations of the National Board of Medical Examiners, Inc., provided they meet all other requirements of the Board as provided in regulations governing such candidates. It should be noted that this regulation is permissive, not mandatory. Each application will be evaluated individually.

Citizens of Other Countries.—Properly qualified candidates who are permanent residents in and citizens of other countries and are licensed to practice there and who have fulfilled the residency training requirements listed above in the United States or Canada may apply for examination for certification by the American Board of Pediatrics.

Such foreign candidates who are returning to their own country at the end of their training period may be examined without completion of two full years in the practice of pediatrics. The residency training requirements must be completed in full in advance of admission to any part of the examinations.

A special certificate, appropriately identified to distinguish it from the regular certificate of this board, may be issued to such candidates who have passed successfully the examinations of this board after they have completed such a period of practice or further study in their own country which, when added to similar experience in the United States or Canada, make a total of two years of the practice of pediatrics.

INFORMATION CONCERNING EXAMINATIONS

The examinations for certification are given in two sections. Part I is written; Part II is an oral examination.

Part I—Written

Written examinations are objective in type and are given once each year, usually in January, simultaneously at a number of places scattered throughout the country, and at a few military stations abroad. Candidates must pass the written examination before admission to the oral examination will be authorized.

Part II—Oral

Oral examinations are held four to six times each year at centers offering suitable facilities, in locations determined by proximity to the largest number of eligible candidates. One examination session each year is scheduled at a location closer to candidates from some less populous area. As far as possible, candidates are given a choice of locations, taking into account the date application is filed, date of eligibility and proximity to the examination site.

Candidates who are admitted to the oral examination (Part II) will not be informed of their grade on the written portion. Their relative standing in Part I will, however, be utilized in final decision with regard to passing.

Candidates who fail after taking Part II will not be required to retake Part I but may be advised to do so in order that they may have an opportunity to improve a low score.

APPLICATION

Application must be made on special blanks, which will be furnished by the executive secretary after a preliminary survey of the applicant's training. Applications may be submitted one year in advance of eligibility date; they will not be accepted earlier. The number of candidates admitted to a given written mination will be determined by the number who can be mined orally during that year, plus a reasonable number alternates.

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[*] To avoid misunderstanding, the board urges any candidate whose training is not clearly covered in these regulations to communicate with the office of the executive secretary. Whenever possible, this should be done before entering upon the appointment in question.

LETTERS OF RECOMMENDATION

Letters from two competent pediatricians recommending each plicant must be sent to the executive secretary of the board. se letters should not accompany the application but should sent directly to the executive secretary.

FEES

The application fee is $75.

The full fee must be remitted with the application. Refund l be made only if the applicant is refused examination for son other than failure in the same.

No additional fee is required for second and third written minations. The fee for second and third oral examinations 50 each.

CERTIFICATION IN SUBSPECIALTY OF ALLERGY

LLIAM C. DEAMER, Chairman, San Francisco
OME GLASER, Rochester, N. Y.
ORGE B. LOGAN, Rochester, Minn.
RRY L. MUELLER, Boston
ES OVERALL, Nashville, Tenn.
T RATNER, New York

he American Board of Pediatrics has established certifica- in allergy as a subspecialty of pediatrics.

ll candidates must pass the written and oral examinations in iatrics before submitting an application for examination in rgy.

ach allergy application is individually considered and must accepted by the subspecialty board.

INFORMATION CONCERNING EXAMINATIONS

llergy examinations consist of written and oral portions. The tten examination will be given once a year under a local nitor and must be passed before admission to the oral ex- ination will be authorized. Oral examinations will be held times and places designated by the chairman of the sub- cialty board. Ample notice will be sent to candidates by the cutive secretary.

FEES

he application fee for certification in allergy is $100.

The full fee must be remitted with the application.

No additional fee is required for second and third written ex- inations. The fee for second and third oral examinations is each.

pplication forms will be forwarded on request to the office the Executive Secretary of the American Board of Pediatrics should be returned to that office when completed. All respondence should be addressed to him.

REQUIREMENTS

. Certification in pediatrics.
2. Two years full time of approved allergy residency or fel- ship training in an approved clinic and its hospital, or
3. One year full time of approved allergy residency or fel- ship training and two years, part-time, 200 hours a year in approved clinic and its activities, or
4. Five years, part-time, 200 hours a year in an approved rgy clinic and its activities.
5. Preceptorship alone is not acceptable, but a resident or low doing full-time work in allergy may spend part of his ne working with private patients in the hospital or in the ice of an allergist qualified to give this training.

Until clinics are officially approved, the candidate should as- e himself that the clinic is satisfactory for training by writing the executive secretary of the Board of Pediatrics. In general h clinics will be in hospitals that have been accepted by the uncil on Medical Education and Hospitals of the American edical Association and by the American Board of Pediatrics training in pediatrics, or have been approved for training allergy by the Board of Pediatric Allergy or of Internal edicine.

Under all methods of study there must be presented evidence serious work in research or clinical investigation.

The candidates must be prepared for a searching examination in the theory and practice of allergy. This will include the theory of the underlying mechanisms, animal experimentation, the clinical manifestations in the so-called allergic diseases, especially as they appear in infants and children, and also the allergic factors that may be present in other diseases. They must be prepared to discuss the important diagnostic procedures and methods of treatment and, in controversial matters, they must be familiar with the arguments on both sides of the questions.

CERTIFICATE

When accepted the diplomate will receive from the American Board of Pediatrics a certificate in allergy and will be listed as a specialist in allergy.

Prospective applicants for certification in the subspecialty of allergy may apply to the executive secretary of the American Board of Pediatrics.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

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A. B. C. KNUDSON, Washington, D. C.
FREDERIC J. KOTTKE, Minneapolis
DONALD L. ROSE, Kansas City, Kan.
ARTHUR L. WATKINS, Boston
EARL C. ELKINS, Secreary-Treasurer, 200 First St. S.W.,
Rochester, Minn.

QUALIFICATIONS

A. Satisfactory moral and ethical standing in the profession.

B. A legal license to practice medicine in one or more of the states of the United States, its territories, the District of Columbia, or one or more of the provinces of Canada.

C. Graduation from a medical school approved by the Council on Medical Education and Hospitals or graduation from a foreign medical school which, in the opinion of the board, offers medical education equivalent to such an approved school; completion of an internship in a hospital approved by said Council.

D. A period of study after the internship of not less than thre years in a residency approved by the above mentioned Council. This period of study shall include graduate training in basic sciences as related to physical medicine and rehabilitation and not less than two years of clinical training and experience in physical disabilities related to the fields of rheumatology, neurology, neurosurgery, orthopedics, and medicine.

E. An additional period of not less than two years in full time practice of physical medicine and rehabilitation.

Training in approved residency programs in closely allied medical-surgical fields may be acceptable in part (for "D" above), but such credit is limited and based on individual interpretation by the board.

In selected cases, a candidate may be deemed eligible for examination on the basis of eight years of full time practice in physical medicine and rehabilitation (as a substitute for "D" and "E" above).

EXAMINATION

The examination for certification is given in two parts. Part I is written, part II, oral. Examinations are given once a year and cover certain aspects of the basic sciences and the clinical aspects of physical medicine and rehabilitation (including the role of associated personnel such as the physical therapist, occupational therapist, clinical psychologist, social service worker, and vocational guidance counselor).

APPLICATION

The application form shall contain a record of the candidate's premedical and medical education, internship, graduate study, and verification of full time practice in the specialty. The application shall be accompanied by a fee of $100, which will cover the evaluation and both the written and oral examination. (In case of rejection of application, $85 will be refunded. The remaining $15 constitutes the evaluation fee.)

CERTIFICATION

Certificates of the board shall be issued to the effect that the applicant has been found qualified as a specialist in physical medicine and rehabilitation.

AMERICAN BOARD OF PLASTIC SURGERY

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S. Milton Dupertuis, Vice-Chairman, Pittsburgh
Truman G. Blocker Jr., Galveston, Texas
Albert D. Davis, San Francisco
William H. Frackelton, Milwaukee
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Gerald B. O'Connor, San Francisco
Kenneth L. Pickrell, Durham, N. C.
Lyndon A. Peer, Newark, N. J.
Clarence R. Straatsma, New York
Frank McDowell, Secretary-Treasurer, St. Louis
Mrs. Estelle E. Hillerich, Corresponding Secretary,
4647 Pershing Ave., St. Louis 8, Mo.

GENERAL REQUIREMENTS

1. Moral and ethical standing in the profession satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Those whose activities are limited to the practice of plastic surgery.

3. This board will accept as applicants for examination only those who are full citizens of the United States or Canada. Notarized statements, not original citizenship papers, attesting to the fact of full citizenship in the United States or Canada must be furnished by foreign-born applicants when the application is filed. Such candidates must have at least two years of practice in plastic surgery in North America after completing the training required by the board.

PROFESSIONAL REQUIREMENTS

The board considers the requirements outlined below to be minimal in attaining its purposes and encourages candidates to take advantage of broadening experience in other fields. Candidates must fulfill the requirements that are in force at the time of their examination and/or certification.

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable by the board.

2. Completion of an internship of not less than one year in a hospital approved by the same Council.

3. Two years of postgraduate work in general surgery, beyond the intern year, as a resident or an assistant resident in a hospital approved by the same Council.

4. Training in general plastic surgery, including maxillofacial surgery, for an additional period of not less than two years in a residency approved by the same Council, or in a preceptorship approved by the Board. In fulfilling this requirement, there is a limit of one year's credit given for all work done in all governmental plastic surgery residencies (Army, Navy, Veterans Administration hospital, etc.) regardless of the time put in by trainees in such residencies. It is required that all such trainees take one additional year of approved training in plastic surgery in a civilian residency or preceptorship.

5. During these years of training following the internship year, a candidate must hold positions of increasing responsibility for the care and management of patients with surgical conditions. When a candidate receives his training in more than one institution, it is equally imperative that he hold positions of increasing responsibility. He must have sufficient operative experience to acquire surgical skill and judgment through the performance of surgical operations with a high degree of responsibility, but under circumstances providing adequate opportunity for consultation and advice.

6. An additional period of not less than two years of practice in plastic surgery. If a candidate elects to spend one or two additional years in approved training in plastic surgery, one year of such training will be credited toward the required two years of private practice if it can be demonstrated that the candidate held a position of increasing responsibility. It is imperative that one year be in actual private practice in such instances.

The Board gives credit *only* for training in plastic surg received in the United States or Canada, but may, at its cretion, give credit towards the required private practice p for training in plastic surgery received in countries other t the United States and Canada, each case being determi individually.

The above training in plastic surgery may be taken resident in an approved hospital or under an approved ceptorship offering equivalent training (a list of currentl proved preceptorships is available from the board office) the latter statement it is meant that one may secure the n sary and specified training as an assistant to an accre plastic surgeon provided suitable facilities for the educati the candidate are offered.

The period of special training should emphasize the re of the basic sciences—anatomy, pathology, physiology, bio istry, bacteriology—to the application of surgical pri which are fundamental in all branches of surgery, and esp to plastic surgery. In addition, the candidate must und and be trained in the following subjects: the care of em cies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, etc.

The board reserves the privilege of requesting lists of operations done solely by the candidate for one or more years, or of requesting special and extra examinations, written or oral and practical, and of requesting any specific data concerning the candidate that may be deemed advisable before making final decision for certification.

Eligibility rulings or an evaluation of a candidate's qualifications or training cannot be made by the secretary or by any one member of the board. Official evaluations of qualifications are made only by the committee on credentials and requirements, or by the entire board where necessary, after a review of the candidate's formal application for such rulings. The applicant must allow at least two months for such requests make the rounds of the committee.

TRAINING FACILITIES

Residencies.—The American Board of Plastic Surgery, in operation with the Council on Medical Education and Hospit of the American Medical Association and the American Coll of Surgeons, evaluates training facilities in institutions provid acceptable residencies in plastic surgery. The board does assume the responsibility for independent inspection and proval of residencies. It will inspect and make recommendati for or against approval of a residency in plastic surgery after the director of the residency has applied to the Reside Review Committee in Plastic Surgery of the Council on M ical Education and Hospitals of the American Medical Ass tion for approval of the residency, and after the Council notified the board to that effect. Therefore, any diplomat the board wishing approval of a residency under his supervi should apply to the Council for such approval.

The board will make its own inspection, preferably at same time as the American Medical Association Counci spection, and will report its findings to the Council. Upon pletion of consideration by the Council and the board hospital will be notified by the Council of the joint action has been taken, and the hospital and the secretary of the b will be notified simultaneously by the Council to avoid misunderstanding as to the status of the program.

Preceptorships.—In certain instances the board will accept, in lieu of the required two years' training in an approved residency, training in an approved preceptorship under a fully qualified plastic surgeon when such preceptorship is properly organized and supervised to give the trainee adequate experience and training in plastic surgery of a well-rounded nature. Trainees will be required to keep a detailed record of their experience, presenting this report to the board annually on a report form supplied by the board on request. In preceptorship programs of training it would be well for the preceptor to report annually to the board the name and qualifications of any preceptee under his supervision and the work done by the preceptee. Neither the board nor its individual members can be responsible for the placing of applicants for training. The board considers those residencies approved by the Council on Medical Education and Hospitals of the American Medical Association as acceptable facilities for training in plastic surgery.

It should be kept in mind by all that the primary interest of the board is to encourage well-rounded training in plastic surgery with the aim of producing plastic surgeons capable of doing good work in the wide variety of cases which may come under their care. The standards set up by the board, both for preliminary general surgery and for specialized plastic surgery training, are established in an effort to further this aim. The quality of the training received should be reflected in the candidate's ability to achieve good results in his practice, and the examinations of the board are an attempt to judge the ability of the candidate in the specialty of plastic surgery.

Before training in plastic surgery is begun, the plastic surgeon in charge of the residency or preceptorship should ascertain that the trainee's preliminary training in general surgery meets the requirements of the board, that is, two years of residency training in general surgery after the internship year.

The training in plastic and maxillofacial surgery (at least two years) whether in a residency or a preceptorship, should cover a wide field of plastic surgery, both as to type and anatomic distribution. It should include experience in the treatment of congenital and acquired defects and deformities of the face, neck, body, and extremities, for both functional and esthetic reasons. There should be available sufficient material of a diversified nature so that the trainee will be able to pass the examinations of the board after the period of training and the two additional years of private practice. If the available material on one service is inadequate, the deficiency should be made up by affiliation with another plastic surgeon on another service so that a broad experience will be obtained in plastic surgery. The trainee should be provided an opportunity to operate under the direct supervision of the plastic surgeon in charge, and with increasing ability, should be given an opportunity to operate independently on suitable cases under more remote supervision.

MILITARY CREDIT

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

The Medical Officer's Professional Training Record (DD Form 408) is a record maintained by individual Medical Corps officers for presentation to the various authorized accrediting boards toward certification. This record is presented by the officer to the boards for evaluation of the military experience acquired by Medical Corps officers while serving in the Army Medical Service. This form has been prepared by the Surgeons General of the armed services with the assistance of the Council on Medical Education and Hospitals of the American Medical Association and is distributed by the offices of the Surgeons General to their personnel. It is highly important that prospective applicants obtain a copy of this form and that it be submitted with their credentials for evaluation by the board.

CASE REPORTS

Upon approval by the board of a candidate's application for certification, each candidate is required to submit to the board 35 or more case reports illustrative of his independent work in the field of general plastic surgery.

Candidates are admitted to examination only after submitting case reports that meet the required standards of the board and that have been approved by the committee on credentials and requirements.

Case reports must be submitted within one year from the time of such request; otherwise a new application must be filed. The case reports shall conform to conditions which the board may from time to time specify.

Case reports must be received in the office of the board by January 1 for those who desire to be considered for the spring (May-June) examinations of the board and by July 1 for the fall (October-November) examinations. There will be no exceptions to these two deadlines.

The 35 case reports must be of a diversified nature and must be submitted to the office of the board together with before and after photographs. They should be of the following distribution:

1. Cleft lip: 1 to 3 cases
2. Cleft palate: 1 to 3 cases
3. Traumatic defects requiring reconstructive surgery:
   (a) Face and neck: 2 to 4 cases
   (b) Body: 1 to 4 cases
   (c) Extremities: 1 to 6 cases
4. Acute burns: 2 to 4 cases
5. Fracture of facial bones, excepting nasal fractures: 1 to 3 cases
6. Esthetic operations of sufficient variety: 6 to 12 cases
7. Plastic surgery of the hand: 2 to 4 cases
8. Malignancies, or conditions prone to malignancies (eradication and repair):
   (a) Face: 2 to 4 cases
   (b) Body: 1 to 3 cases
   (c) Extremities: 2 to 4 cases
9. Congenital anomalies: 1 to 6 cases
   (a) Examples:
      (1) Syndactylism
      (2) Congenital absence (partial or total) of external ear
      (3) Hypospadias
      (4) Bands (constricting)
      (5) Thyroglossal duct cyst
      (6) Extensive nevi, etc.

If the case reports and lists of operations are approved, the candidate will receive subsequent information regarding taking the examinations. The board at its discretion may request certification of case reports by the hospital where the operations were performed. The following form should accompany the case reports: "I hereby certify that the planning and essential surgical procedures described herein were carried out by me as an independent operator."

Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications, but on his professional ability as a plastic surgeon, his ethical standing in the community, and the strict limitation of his work to plastic surgery.

A candidate should remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his ability.

EXAMINATIONS

In instances where a candidate submits case reports that do not meet the standards of the board, he will be required to submit additional case reports or an entirely new set of 35 within a period of one year. If this second series of case reports again do not meet the standards of the board, the candidate may be required to take additional training (of length and type specified by the board) before he will be allowed to submit any further case reports.

After a candidate has been notified that he has fulfilled the preliminary requirements and that his case reports have been approved, he will be required to take the qualifying examination within a period of three years.

After approval of the case reports, and prior to the examination, the candidate will be visited at his place of practice by a member or members of the board to observe him operate and to examine a number of his pre-operative and post-operative cases.

The qualifying examinations are given twice yearly, in the spring and fall. The spring examination is given immediately preceding, during, or following the annual meeting of the American Association of Plastic Surgeons (usually in May), and the fall examination is given immediately preceding, during, or following the annual meeting of the American Society of Plastic and Reconstructive Surgery (usually in October). Candidates are required to go to the designated center for the qualifying examination, which will last three days. These centers will be the city in which the meetings of these two organizations are held if the proper clinic and hospital facilities are available, otherwise in some nearby city where such material is available. Arrangements for all examinations are made by the examination committee.

A written examination will consume all of the first day and half of the second day. An oral and practical examination will consume the afternoon of the second day and all of the third day. The subjects of the written examination are (1) theory and practice of plastic surgery, (2) applied anatomy, applied physiology, (3) pathology, bacteriology, clinical laboratory methods (pharmacology), (4) reaction of tissue to injury, surgical accidents, anesthesia. A general oral examination pertaining to plastic surgery will be given. In the practical part of the examination, the examiners will present a group of patients for examination by the candidates, and the candidates will be quizzed on methods of procedure—diagnosis, treatment, technique, and so on. Slides of preoperative conditions will be shown on a screen and the candidate asked to make a quick diagnosis of the items and to tabulate in the order of their importance the methods of treatment. Microscopic slides of the average pathological tissue falling within the province of the plastic surgeon will be given the candidates, and they will be asked to write a description and diagnosis.

GRADES

To be considered as passing, the candidate will be required to receive a grade of at least 65% in each portion of the written examination and an average grade of 75% on the entire written and oral examination.

CERTIFICATION

After a candidate has met the requirements for eligibility and passed the examinations of the board, a certificate attesting his qualifications in plastic surgery will be issued to him by the board, signed by its officers and having the seal of the board affixed thereto. It shall be the prerogative of the board to determine the fitness professionally and ethically of any candidate for its certificate, and the action or decision of the board regarding the certification of any candidate shall be final.

FEES

The fee for application and examination is $150. Of this sum, $25 must accompany the application and the remaining $125 must be paid when the candidate is notified of acceptance for examination. There will be no refunds. This fee may be increased at the discretion of the board. The board is a nonprofit organization, and the fees of candidates are used solely for defraying the actual expenses of the board. The members of the board serve without remuneration. Because of the limited number of surgeons certified by this board it is necessary for a limited time to request a voluntary annual contribution of $10 from diplomates after the first year's certification to help defray expenses.

AMERICAN BOARD OF PREVENTIVE MEDICINE

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  vania, Philadelphia 4, Pa.

ELGIBILITY REQUIREMENTS

Except as mentioned later, each applicant for a Certificate Public Health, Aviation Medicine or Occupational Medicine required to meet certain eligibility requirements and to pas examination. Such eligibility requirements are set forth in by-laws of the Board. For the information of applicants su requirements are briefly outlined below; but for a full statem thereof reference must be made to the by-laws, as from tim time in force, by which alone such requirements are govern

GENERAL REQUIREMENTS

1. Good moral character and high ethical and professio standing;
2. Graduation from a medical school in the United States Canada approved by the Council on Medical Education a Hospitals of the American Medical Association, or from a eign school satisfactory to the Board;
3. An internship of at least one year in a hospital appro by the Council on Medical Education and Hospitals of American Medical Association or in a foreign hospital sa factory to the Board; and
4. Licensure to practice medicine in the United States or the Dominion of Canada.

SPECIAL REQUIREMENTS IN PUBLIC HEALTH

1. Successful completion (after internship) of at least academic year of graduate study leading to the degree of Mas of Public Health or an equivalent degree or diploma; or tra ing or study deemed by the Board to be substantially equival to such graduate study;
2. *Residency (after internship) of at least two years of f experience in general public health practice, which inclu planned instruction, observation, and active participation in comprehensive, organized, public health program, one year which may be an approved clinical residency in a field dire related to public health;
3. A period (after internship) of not less than three years, addition to 1 and 2 above, of special training in or teaching practice of public health; and
4. Limitation of practice to full-time teaching or practice public health as a specialty.

SPECIAL REQUIREMENTS IN AVIATION MEDICINE

1. Successful completion (after internship) of at least academic years of graduate study in preventive medicine a aviation medicine, one year of which graduate study shall be a school of public health accredited for the purpose of su graduate study by the American Public Health Association a one year of which shall be in a school of aviation medicine credited for the purpose of such graduate study by the Coun on Medical Education and Hospitals of the American Medi Association; or training and study deemed by the Board to b substantially equivalent to such graduate study.
2. *Residency (after internship) of at least one year o supervised experience in aviation medical practice, which in cludes planned instruction, observation, and active participati in a comprehensive, organized program of aviation medicine,
3. Supervised practice of aviation medicine (after internship of not less than one year, in addition to 1 and 2 above, of speci training in or teaching or practice of aviation medicine;

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*Approval of Residency training is in the process of develo ment. Until such time as an adequate program of Residency i developed, field training will be evaluated by the Board on a individual basis. Information as to approved residencies may b obtained from the Council on Medical Education and Hospit or from the Secretary of the Board.

4. A period (after internship) of not less than two years, in dition to 1, 2 and 3 above, of special training, teaching, re-rch or practice of aviation medicine;

5. Limitation of practice to full time teaching, research or actice of aviation medicine;

6. Regular and frequent participation in aerial flight.

Credit for training and experience in public health or aviation dicine while in military service will be considered on an indi-dual basis depending on the type of service.

SPECIAL REQUIREMENTS IN OCCUPATIONAL MEDICINE

1. Successful completion (after internship) of at least two ademic years of graduate study in preventive and occupa-nal medicine in a school of medicine, or a school of public alth. The schools in which such instruction is provided shall accredited for graduate study by the Council on Medical ducation and Hospitals of the American Medical Association the American Public Health Association, in accordance with e jurisdictions of these accrediting agencies; or training and udy deemed by the Board to be substantially equivalent to ch graduate study.

2. Completion (after internship) of not less than one year, in ldition to 1 above, of supervised experience (residency) in oc-pational medical practice in an industrial or medical organiza-on. This residency shall provide planned instruction, observa-on and active participation in a comprehensive program of cupational medicine; or a comparable period of experience emed by the Board to be substantially equivalent to such year supervised experience.

3. A period (after internship) of not less than three years, addition to 1 and 2 above, of special training in or teaching practice of occupational medicine.

4. Limitation of practice to full time teaching, research, or actice of occupational medicine.

APPLICATIONS

Each application for examination must be made on the pre-ribed form (which may be obtained from the Secretary), and accompanied by the required documentation and must be ed with the Secretary, ordinarily not less than 90 days prior to e date of examination. The application must also be ac-mpanied by the application fee and two recent, clear, un-ounted, autographed photographs of the applicant one of hich should be attached to the application and the other un-tached.

FEES

The fee for application and examination is $90, payable as dicated below; additional fees are payable for re-examination, it no additional fee is payable for issuance of a Certificate.

Application fee................$15.00. No application will be con-dered unless accompanied by the application fee. The applica-on fee is not refundable.

Examination fee............$75.00. This fee is payable when the plicant is notified of acceptance for examination, and, if paid ior thereto, is not refundable after such notification has been ven.

No member of the Board is authorized to give informal opin-ns as to the eligibility of candidates. The determination of gibility will be made only by the Board after receiving full plication information. Each candidate must comply with oard regulations in effect at the time the examination is taken nd also those in effect at the time the Certificate (if any) is sued, regardless of when his original application was filed. An plicant declared ineligible for admission to examination may file or reopen his application on the basis of new or additional formation within two years of the filing date of his original pplication without payment of an additional application fee.

Applicants who are declared eligible for examination but who il to submit to examination within three years of the date of e filing of the application are required to file a new application nd pay a new application fee.

EXAMINATIONS

Examinations will be held from time to time and in various laces depending upon need as indicated by applications re-eived. Examinations will ordinarily be held in connection with the annual meetings of one or more of the sponsoring societies and may also be held at other times and other places so located geographically as to minimize travel for the applicants.

The examination consists of three parts:

Part 1 consists of a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine. Part 2 is a comprehensive written examination designed to test the knowledge of the applicant in the special field in which he requests certification. Part 3 is an oral or practical examination which will usually be held at the completion of the written examinations. An endeavor will be made to adapt the details of the oral or practical examination to each candidate's experience and practice. The examiners will report upon each candidate to the assembled Board, by which the results of the examination will be considered.

CERTIFICATION

Upon satisfactory completion of the examination and proof to the satisfaction of the Board that the applicant is eligible for certification, a Certificate will be issued to the effect that the applicant has been found to be possessed of special knowledge in the field specified in his application. The Certificate will be signed by officers of the Board and will have its seal affixed. Each Certificate remains the property of the Board, but the person to whom it is issued is entitled to its possession unless and until it is revoked. Any Certificate issued by the Board may be revoked if evidence, satisfactory to the Board, is presented that the applicant was not eligible to receive it at the time of application or issuance, or that he misstated, misrepresented or concealed any pertinent fact, or that his license to practice medicine has been suspended or revoked, or that he has ceased to be engaged in the teaching or practice of the specialty in which he has been certified. The issuance of a Certificate to any person does not constitute such person a member of the Board.

PLEDGE

Each candidate is required to sign the following pledge.

"I hereby pledge myself to the highest ethical standards in the practice of" the specialty.

The above requirements for certification are undergoing revision at the present time. Communications regarding such revisions should be addressed to the Secretary of the American Board of Preventive Medicine.

AMERICAN BOARD OF PROCTOLOGY

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R. A. Scarborough, San Francisco
Stuart T. Ross, Secretary, 520 Franklin Ave.,
Garden City, N. Y.

QUALIFICATIONS AND REQUIREMENTS

General

All candidates shall comply with the following regulations:

1. A candidate shall possess moral, ethical and professional qualifications acceptable to the Board.

2. He shall possess full citizenship in the country where he practices.

3. He shall limit his practice to proctology, shall appear personally before the Board and shall submit to the required examinations.

4. He shall deliver to the Board upon request an official record of patients hospitalized by him during the year prior to the date of submission of the application.

5. He shall submit a bibliography of papers and books published by him.

Professional Qualifications

1. He shall be a graduate of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.
2. He shall possess a license to practice medicine in the country of his residence.
3. He shall have completed an internship, preferably of the general rotating type, of not less than 12 months in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

Special Professional Qualifications

He shall have completed:

1. Two years of approved general surgical residency and two years of approved proctologic residency; or
2. Three years of approved general surgical residency and one year of approved proctologic residency by special arrangement with the Board; or
3. Three years of approved general surgical residency and two years of approved proctologic preceptееship by special arrangement with the Board; or
4. Two years of approved general surgical residency and three years of approved proctologic preceptеeship.

APPLICATIONS

Each candidate for examination shall submit an application prepared upon the prescribed form which may be obtained from the Secretary of the Board. It shall contain a record of the candidate's premedical and medical training, internships, residencies, preceptееships, other post-graduate study, hospital and dispensary appointments, teaching positions, service in the Armed Forces, service in federal, state or local government, membership in medical societies and any additional information considered valuable by the Board.

The application shall be signed by two proctologists. It shall be accompanied by two unmounted autographed recent photographs of the candidate, letters of endorsement from appropriate sources and the application fee. It shall be filed with the Secretary not less than 90 days prior to the date of examination.

EXAMINATIONS

Examinations are conducted at times and places determined by the Board and are announced in The Journal of the American Medical Association.

Seventy-five per cent is the passing grade on all examinations.

Examination papers are identified only by numbers and the examiners do not know the identity of the examinees.

Part I: This consists of a comprehensive written examination in the basic sciences, including anatomy, physiology, pathology, bacteriology and biochemistry. The examination is held in the fall of the year simultaneously in several cities of the United States.

Upon approval of the American Board of Proctology, candidates who have passed Part I examinations of the American Board of Surgery and who have completed required training in proctology may not be required to take Part I of the examinations of the American Board of Proctology.

Part II: This is a practical examination which is held in the community in which the candidate conducts his professional activities. (It may be omitted at the discretion of the Board, in which case the candidate will be notified by the Secretary.) It is endeavored to arrange the examination at a time suitable to both the candidate and the examiner. The examination includes inspection of:

1. Surgical operations.
2. Hospital rounds.
3. Hospital and office records.
4. Office practice.

Part III: This consists of comprehensive written and oral examinations on the theory and practice of proctology, and includes roentgenologic interpretation. The examination is usually held in the fall of the year in one designated city of the United States. The candidate is not admitted to Part III examinations until he has completed the requirements of Part II.

The oral portion of the examination is conducted by mem of the Board or its designated examiners. An attempt is made t ascertain the *candidate's* knowledge of current procto literature, his knowledge of the basic sciences, and the ext of his clinical experience and other qualifications.

FEES

Application fee: A fee of $25.00 shall accompany the appl cation.

Examination fee: A fee of $150.00 is due and payable wh the candidate is notified that he has been approved for examination.

No fee shall be returned to the candidate without Board approval.

All fees shall be made payable to The American Board o Proctology and shall be sent to the Secretary.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOG

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102-110 Second Ave. S. W., Rochester, Minn.

APPLICATION

An application, in order to be considered at any meeting of *the Board*, must be in the hands of the *Secretary* of the Board not less than 90 days before the date of such meeting. A proper application *form may* be obtained from the Secretary. Application may be made for certification in psychiatry or in neurology or in both *fields*. Applications will be formally considered only when made *on the* official application blank in such form as may be adopted from time to time by the Board and which accompanied by an application fee in such amount as may b fixed by the Board.

The Secretary of the Board, upon receipt of an application, shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the Secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association after which he shall forward the application to the Committee on Credentials. This Committee shall consider the applicatio and other information available and *notify* the Secretar whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both, shall be approved by a majority of the members *of* the entire Board a any meeting held for such certification.

FORM OF CERTIFICATION

There shall be separate certification in psychiatry and neurology and two certifications or a *combined* certification f those qualified in both fields. The certifications shall be in su form as is approved by the Board of Directors.

GENERAL REQUIREMENTS

Each application for a certificate must establish that:

(a) He is a physician duly licensed by law to pract medicine.

(b) He is of acceptable ethical and professional stand

(c) He is now a member of the American Medical As ciation. Exceptions to the foregoing may be made at *the* cretion of the Board for good and sufficient reasons.

(d) He has satisfactorily completed adequate training psychiatry or neurology, or both, as a *specialty*.

CLASSES OF APPLICANTS

Class A

Applicants who graduated from an approved medical school before the foundation of the Board (1934) will not be held to the strict interpretation of the published requirements in formal graduate training. Under such circumstances the Board will consider the training and experience of the applicant and decide whether or not he will be admitted to the examinations. After January 1, 1954, for such graduates the Board will consider ten years of full-time acceptable experience in psychiatry or neurology in lieu of the formal training requirements. Should the candidate then apply for supplementary certification, the Credentials Committee will require five years of additional acceptable experience in the supplementary field.

Class B

Applicants who graduated from an approved medical school after 1934 shall fulfill the following special requirements.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose medical training has been received outside the United States and Canada, such training must be satisfactory to the aforementioned Council.
2. Satisfactory completion of a year's internship approved by the same Council in General Medicine, General Surgery, Pediatrics or a rotating service.
3. The nine-month wartime internship will be accepted as an equivalent of one year.

SPECIALIZED TRAINING

Admission to the examination for certification in psychiatry or in neurology requires a total of five calendar years of training and experience, three years of which must be specialized training satisfactorily completed in approved training centers, plus two years of experience. Admission to the examination for certification in both psychiatry and neurology requires a total of six calendar years of training and experience, five years of which must be specialized training satisfactorily completed in approved training centers, plus one year of experience. The specialized training may be subdivided into two and one-half years each in psychiatry and neurology or three years in one subject and two years in the other. The required years of experience should be spent in clinical practice with major responsibility for the care of patients.

All applicants who wish to qualify for examination for certification in psychiatry or neurology under the regulations relating to training credit and who began training on or after July 1, 1956, must show that at least 24 months of their residency training have been secured in residency training programs approved for at least two years of residency training in the specialty in which they seek certification.

The training for psychiatrists should include clinical work with psychoneurotic and psychotic patients, combined with the study of basic psychiatric sciences, medical and social psychology, psychopathology, psychotherapy, and the physiological therapies, including a basic knowledge of the form, function and pertinent pathology of the nervous system. The training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training period should include instruction in the psychiatric aspects of general medical and surgical conditions and the behavior disorders of children and adolescents sufficient to develop practical ability to direct the treatment of such conditions. It should also include collaborative work with social workers, clinical psychologists, courts, and other social agencies. The training program of the candidate for certification in psychiatry should include sufficient training in neurology to enable him to recognize and to evaluate the evidences of organic neurological disease.

The training for neurologists should be based on clinical work with adults and children with neurological disorders, including the neurological complications of medical and surgical conditions. This should be combined with study of the basic neurological sciences, neuroanatomy, neurophysiology, neuropathology, and neuroroentgenology. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training should include sufficient training in psychiatry to enable the candidate to recognize and evaluate the common psychiatric reactions.

The Board offers the foregoing two paragraphs as an outline of desirable training. If, however, the candidate has evidence of equivalent qualifications of training and experience not in the pattern here formulated, this evidence with appropriate documentary support may be included in his application for evaluation and possible approval by the Board.

Candidates seeking certification in both neurology and psychiatry, or supplementary certification in one after being certified in the other, must submit evidence satisfactory to the Board of an additional two years of full-time basic training in the supplementary specialty.

Thus, no candidate is eligible for examination by the Board until he has completed at least five years of special training and experience in neurology or in psychiatry for a single certificate, or at least six years of special training and experience in neurology and psychiatry for certification in both neurology and psychiatry.

The Board will give not more than six months of credit for not less than six months of training in an approved training center for Internal Medicine or Pediatrics in lieu of six months of experience to candidates for the certificate in psychiatry or neurology, but not to candidates for certification in both psychiatry and neurology.

The Board will give credit for one year of training in Child Psychiatry providing it is the third year of the required three years of special training required by the Board and providing it is taken in a center approved by this Board for training in Child Psychiatry. After July 1, 1956, training credit for work in the field of Child Psychiatry may be gained only by participation in a hospital residency training program that is regularly approved. After that date, all independent training approval of psychiatric clinics for children is discontinued.

TRAINING IN THE ARMED FORCES

Training and experience credit toward requirements for examination will be granted for military duty in the Korean emergency under certain conditions. This policy relates to active military medical duty since July 1, 1950. One year of training credit will be granted for one year spent in full-time psychiatric and/or neurological duties. Additional training credit will be granted for that amount of time spent in approved training programs. Experience credit will be granted for any remaining time spent in full-time psychiatric and/or neurological assignments. Double credit will not be granted for any single period of time.

For military duty after January 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurologic duties. Training credit will be granted for residency assignments in regularly approved training program.

EXAMINATIONS

Dates and places of examinations shall be set by the Board at its discretion and shall be announced in THE JOURNAL of the American Medical Association, in the American Journal of Psychiatry, in *Journal of Nervous and Mental Diseases*, and in the A. M. A. *Archives of Neurology and Psychiatry.*

Though the purpose of the examination is to test the competence of the candidate in psychiatry or neurology or both, it must not be forgotten that both these medical disciplines constitute part of the broad field of general medicine. The Board requires some proficiency in neurology on the part of those it certifies in psychiatry and vice versa, but examines the candidate in accordance with the certificate he seeks. The examinations will be of such type that no adequately trained person will fail, and yet they will be sufficiently searching so that the specialist in fact may be separated from the specialist in name. The practical examination will include the examination of patients under the supervision of the examiner. The manner of examining patients, and the reasoning and deductions therefrom, will constitute an important part of the examination. Oral and practical examinations will be given in the basic sciences with special regard to their clinical implications. Written examinations may be given at the discretion of the Board. The examination for certification in psychiatry will differ from the examination for certification in neurology.

FEES

The candidate upon filing his application shall accompany it with an application fee of $50.00, which is not returnable. If a preliminary written examination has been decreed, an additional $25.00 fee will be required at the time of the applicant's acceptance. When notified by the Secretary that he is accepted for the oral and practical examination, the candidate shall send to the Secretary an examination fee of $75.00. A candidate who has been certified in either psychiatry or neurology and who has been admitted to supplementary examination for the other certificate shall pay an additional examination fee of $75.00.

Any candidate who finds himself unable to attend an examination to which he has been admitted and does not notify the Secretary at least three (3) months before the date of the examination will forfeit his examination fee. Any candidate who fails to appear for examination within a period of three (3) years following the date of notification of eligibility for examination shall be required to submit a new application and pay the attendant fee. If a candidate dies before his certificate is issued, all fees will be returned to his estate.

AMERICAN BOARD OF RADIOLOGY

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Ernest H. Wood, Chapel Hill, N. C.
H. Dabney Kerr, Secretary, Kahler Hotel Building, Rochester, Minn.

CERTIFICATES

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges, or license to practice radiology. Certificates of the board shall be issued in one of three categories:

1. *Radiology:* that branch of medicine which deals with the diagnostic and therapeutic application of radiant energy including roentgen rays, radium and radioisotopes.
2. *Diagnostic Roentgenology:* that branch of radiology which deals with the diagnostic application of roentgen rays.
3. *Therapeutic Radiology:* that branch of radiology which deals with the therapeutic application of roentgen rays, radium and radioactive isotopes.
4. *Radiological Physics:* that branch of physics which deals with the medical application of roentgen rays, gamma rays, radioisotopes, nuclear reactions, and particle accelerators.
5. *Roentgen-ray and Gamma-ray Physics:* that branch of radiological physics which deals with roentgen rays and gamma rays.
6. *Medical Nuclear Physics:* that branch of radiological physics which deals with radioisotopes, nuclear reactions and particle accelerators.

GENERAL REQUIREMENTS AND QUALIFICATIONS

Each applicant shall be required to present evidence that he has met the following standards:

1. Satisfactory moral and ethical standing in the profession.
2. A license to practice medicine in the state or county in which he resides.
3. Holds himself out to be a specialist in radiology or one of its branches as defined and devotes his time to the practice of radiology or one of its branches.
4. He is a citizen of the United States or Canada. A candidate from another country must be a permanent resident of that country and a citizen thereof.

PROFESSIONAL EDUCATION

1. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same Council. After completion of the internship, there shall be a period of special training (length of time as indicated below) in an approved Department of Radiology.

Radiology: Those beginning their training *before* July 1, 1956 must have three years' formal residency training in an approved Department of Radiology.

Those beginning their training on July 1, 1956, or thereafter must have three years' formal residency training in an approved Department of Radiology plus an additional year of either further training or practice. The three year training period must include the equivalent of six months (total) in Pathology and Isotopes.

Those beginning their training on July 1, 1956, or thereafter will be required to take a written examination in Physics (including Physics of Isotopes) and Pathology at the *completion* of their formal training. Acceptance for the oral examination is contingent upon passing the written examination. (The written examination in the above two mentioned phases of Radiology will abolish the oral).

Diagnostic Roentgenology: Those beginning their training *before* July 1, 1956, must have two and one-half years' formal residency training in an approved Department of Radiology. The equivalent of six months of this time must have been devoted to Pathology.

Those beginning their training on July 1, 1956, must have two and one-half years' formal residency training in an approved Department of Radiology (the equivalent of six months of which time must have been devoted to Pathology) plus an additional year of either further training or practice.

Those beginning their training on July 1, 1956, or thereafter will be required to take a written examination in physics and pathology at the *completion* of their formal training. Acceptance for the oral examination is contingent upon passing the written examination. (The written examination in the above two mentioned phases of Radiology will abolish the oral).

Those beginning their training on July 1, 1957, or thereafter will be required to take three years' formal residency training in an approved Department of Radiology—the first year of which must be spent in basic training (Pathology, Physics and Basic Radiological Techniques) followed by two years' clinical training. They will also be required to take an additional year of either further training or practice. (Written examination also required for these candidates. See above paragraph).

Therapeutic Radiology: Those beginning their training *before* July 1, 1956, must have two and one-half years' formal residency training in an approved Department of Radiology. The equivalent of six months of this time must have been devoted to Pathology.

Those beginning their training on July 1, 1956, must have two and one-half years' formal residency training in an approved Department of Radiology (the equivalent of six months of which time must have been devoted to Pathology) plus an additional year of either further training or practice.

Those beginning their training on July 1, 1956, or thereafter will be required to take a written examination in Physics (including Physics of Isotopes) and Pathology at the *completion* of their formal training. Acceptance for the oral examination is contingent upon passing the written examination. (The written examination in the above two mentioned phases of Radiology will abolish the oral). Those beginning their training on July 1, 1957 or thereafter will be required to take three years' formal residency training in an approved Department of Radiology—the first year of which must be spent in basic training (Pathology, Physics, Physics of Isotopes and Basic Radiologic Techniques) followed by two years' clinical training. They will also be required to take an additional year of either further training or practice. (Written examination also required for these candidates.)

Those applying for Therapeutic Radiology alone must show evidence of personal experience in the use of intracavitary and interstitial radium or equivalent sources, as well as proficiency in Roentgen Therapy.

Prior to July 1, 1960, those candidates desiring to be certified in either Radiology or Therapeutic Radiology, will be urged to take an examination in Nuclear Medicine.

Those candidates previously certified in Roentgenology desiring to complete their certificate in Radiology (including Nuclear Medicine) will be required to have the equivalent of six months' full-time radium and isotope training in an approved Department of Radiology.

Prior to July 1, 1960, those candidates who have been previously certified in Roentgenology and who *do not* desire to be examined in Nuclear Medicine must have the equivalent of three months' full time radium training in an approved Department of Radiology.

EXAMINATIONS

Usually two examinations are held each year. At present, examinations are practical and oral, although written examinations are to be added as noted above. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics, and radiobiology, as well as the clinical application of roentgen rays, radium, and radioactive isotopes. The applicant is also examined in "professional adaptability," in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

AMERICAN BOARD OF SURGERY

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GENERAL QUALIFICATIONS

An ethical standing in the profession and a moral status in the community which are satisfactory to the Board.

Engagement in the practice of surgery.

PRELIMINARY TRAINING

Graduation from an approved medical school in the United States or Canada or from medical schools acceptable to the Board in other countries.

Completion of an internship (straight or rotating) of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or its equivalent in the opinion of the Board.

SPECIAL TRAINING

The American Board of Surgery is guided by the evaluation of residency training programs made by the Conference Committee on Graduate Training in Surgery and does not itself conduct such surveys.

The Board interprets the term "general surgery" in a comprehensive manner and expects candidates to have knowledge of the basic principles applied in the treatment of fractures, head injuries, or other forms of trauma, and of the more common procedures in plastic, gynecologic, orthopedic, neurologic, thoracic and urologic surgery.

BASIC SCIENCES

It is fundamental to the concept of an approved residency in general surgery that the program provide for properly organized, integrated, and progressively graded clinical training in this specialty. This presupposes a continuity of clinical experience under the supervision of the surgical staff of the hospital or hospitals in which such training is conducted. Accordingly, while recognizing the value of formal courses in the study of surgery and the basic sciences at approved graduate schools of medicine, the Board will not accept these courses as part of a three or four-year residency program in lieu of clinical experience. Furthermore, the integration of basic sciences, particularly pathology, with clinical training is considered superior to formal courses in these subjects.

SENIOR YEAR

The most important single factor in the development of a surgeon is the opportunity under guidance and supervision to grow by progressive and succeeding stages to the stature of complete responsibility for the surgical care of patients. Major operative experience and senior responsibility are essential parts of surgical education and training. For this reason the Board cannot accept for examination candidates who have not had such experience in general surgery, regardless of the number of years in training.

Since a majority of residency training programs do not provide a sufficient accretion of operative experience and personal responsibility until the completion of the senior or final year, the Board requires that the candidate have had this senior year in order to become eligible for examination. Because it is recognized that some flexibility and well-considered experimentation are essential to progress in surgical, as well as other forms of education, the Examination Committee of the Board is prepared to give individual consideration to applicants whose training in general appears adequate although it may not meet all of the following specified requirements.

Requirements for examination are subject to change and in each case are as published in the Board's most recent Booklet of Information at the time application is submitted.

TYPES OF PROGRAMS

The requirements for examination may be fulfilled by either of two programs. These are considered to be minimal in attaining the purposes of the Board and do not preclude additional desirable educational experiences which may strengthen the individual residency training program.

The Board may, at its discretion, require that a member of the Board, or other designated diplomate, observe and report upon the clinical performance of the candidate before considering his eligibility for examination or certification.

The Board reserves the right to require a candidate to submit a list of the operative procedures performed by him during his training period.

Group I Program

Completion of a graded residency in general surgery of at least four years' duration, including the senior year, in an institution or institutions acceptable to the Board and approved for four years of training by the Conference Committee on Graduate Training in Surgery is required.

An approved four-year residency may include a research project or an assignment to a basic science department such as pathology, physiology, or anatomy, provided this is an integral part of the program.

The Board accepts training of not more than one year's duration in "affiliate hospitals" as part of its basic formal educational requirements. Such "affiliate hospital" training must have been part of the graded residency program of an institution approved for four years by the Conference Committee. The senior year must have been spent in the parent institution holding the approval of the conference Committee, except in those instances where the senior year in the "affiliate hospital" is, in the opinion of the Examination Committee of the Board, equivalent in training value to the senior year in the parent institution and is under the same supervision.

The candidate who completes only four years of an approved program designed for more than four years, and [illegible] not have the senior or final year of the resi[illegible] qualifications for special consideration by the Examination Committee. The Committee can recommend acceptance of the candidate for examination in Group I or Group II, provided the evidence indicates the candidate has had adequate operative experience and clinical responsibility as certified by the Chief of Service.

Residency credit will be granted for surgical internship to a candidate who has completed a prior year of acceptable internship when the surgical internship is part of a graded program approved for four years by the Conference Committee.

Group II Program

Completion of a graded residency in general surgery of at least three years' duration, including the senior year, in an institution or institutions acceptable to the Board and approved for at least three years of training by the Conference Committee on Graduate Training in Surgery is the basic requirement.

Residency credit will not be granted for separate periods of time devoted exclusively to research or a preclinical discipline although the day to day integration of these disciplines with clinical surgery is highly desirable. The program must have included three years of clinical surgery and the final year must have been spent in the capacity of senior or chief resident in general surgery.

Two additional years of training beyond the three years of residency to complete a total of five are necessary to meet the requirements for examination. These may include:

(a) Practice of surgery under acceptable supervision (preceptorship). By "acceptable supervision" is meant an arrangement with a preceptor acceptable to the Board who should inform the Board in writing of his willingness to assume responsibility for the candidate's further training. Before the candidate's eligibility for examination can be considered, he will be required to submit to the Board a list of the operative procedures performed by him during the period of supervised practice, and the preceptor will be requested to vouch for the candidate's integrity, surgical judgment, and technical skill. The acceptance of supervised practice in fulfillment of part of the Board's requirements will be contingent upon the candidate's having had adequate clinical opportunities to fortify residency training and considerable responsibility in the care of patients, including the performance of major operative procedures under supervision.

(b) The study of surgery and the basic sciences in an approved graduate school of medicine on a full-time basis and for a consecutive period of not less than nine months, or one school year. Training credit in excess of twelve months will not be granted in this category.

If provision has been made to study a single basic science such as pathology, physiology, or anatomy, up to six months' credit may be granted for such study.

Credit may be granted for a maximum of twelve months spent in full time surgical research under a responsible investigator who is acceptable to the Board. A candidate may not claim credit for both graduate study and research years.

(c) Further acceptable surgical residency or fellowship training, either in general surgery or in a recognized surgical specialty.

Credit as outlined above under (a), (b), and (c) will be applicable only toward the two years of training which Group II candidates must complete in addition to three years of approved residency in general surgery. It will not be considered as residency credit.

MILITARY CREDIT

Credit not to exceed one year may be granted to those candidates who have served in military hospitals other than those approved for residency training, provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the Board. Any such credit will be considered preceptorship credit toward Group II requirements and not basic residency credit.

LICENSE TO PRACTICE

The Board requires, prior to issuance of a certificate that candidates have a valid license to practice in the nation or permanent residence except in those situations in the United States or Canada in which a license to practice is not required, such as the practice of surgery by commissioned officers in the Army, Navy or Public Health Services of these countries.

REQUIREMENTS FOR FOREIGN BORN AND FOREIGN TRAINED CANDIDATES

Such candidates must meet the same requirements as citizens of the United States or Canada. The Examination Committee may, however, in individual instances, grant credit for foreign training.

APPLICATIONS

Prospective candidates for examination by the Board should carefully read the Board's requirements. If, after becoming familiar with the requirements, a candidate needs advice about his training, or believes he has completed the requirements, he should submit a brief chronological outline of his training, including precise dates, using the Evaluation Form which will be furnished on request.

Application for Examination forms are not forwarded until candidates are within several months of completing their training and appear to have met all other requirements of the Board.

Applications should be returned to the Board's office by December 1 for candidates desiring admission to the Part I examination in March, or by July 1 for admission to the Part I examination in October.

The Board's acceptance of candidates for examination is based not only upon an evaluation of their training, but also upon information available to the Board concerning their professional ability as surgeons and their ethical standing.

Candidates are notified of their eligibility for the Part I examination as soon as their applications have been approved, and are sent a list of examination centers from which to choose. Candidates are not eligible for the Part II examination until they have made a passing grade in Part I.

EXAMINATION

The qualifying examination is divided into Part I (written) and Part II (oral). In both of these a knowledge of the practical application of the sciences fundamental to surgery is required.

Part I

The examination is given simultaneously in as many centers throughout the United States as the Board may determine suitable for the purpose and in certain military centers abroad. It will be held on the last Wednesday of October, 1957, March, 1958, and October, 1958. Thereafter the Part I examination will be held only once a year in the late Fall, at a time to be announced.

The Part I examination is of the objective, multiple-choice type, and is administered during a half-day session. This examination is designed to cover general surgical problems including the application of the basic sciences of surgery to these problems. Questions are of various types, and are based upon the analysis of case histories, cause and effect relationships, and other pertinent situations. The examinations are composed by members of the Board with the technical assistance of the Educational Testing Service.

Part II

Examinations are held in ten different centers in the United States each year from September to June inclusive. These are conducted by members of the Board and selected diplomates acting as guest examiners.

The Part II examination is oral and practical and requires the candidate's presence for one day. Candidates are examined in clinical surgery, including diagnosis, management of patients, and the application of anatomy, pathology, physiology, biochemistry, and bacteriology to surgical problems. In pathology, emphasis is placed on an understanding of disease processes and their clinical implications, as well as on the recognition of gross and microscopic lesions. The interpretation of roentgenograms also may be included.

The examination in basic sciences is integrated with clinical surgery and is not given separately.

FEES

The fee for examination is $175 payable as follows: $25 for registration, $75 for Part I and $75 for Part II.

The Board is a nonprofit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses, to aid in improving existing opportunities for the training of surgeons. The members of the Board, except the Secretary-Treasurer, serve without remuneration.

CERTIFICATION IN THORACIC SURGERY

Diplomates of the American Board of Surgery wishing to become certified in thoracic surgery are advised to communicate with the Secretary of the Board of Thoracic Surgery, William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich. This Board is an affiliate of the American Board of Surgery.

BOARD OF THORACIC SURGERY

(An affiliate of the American Board of Surgery)

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For current requirements for certification, communications should be addressed to the Secretary of the Board of Thoracic Surgery.

AMERICAN BOARD OF UROLOGY

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REQUIREMENTS

A. Application for certification must be made on a special form. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials and by $50 of the examination fee.

B. The applicant must have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association and must have completed an internship of not less than one year in a hospital approved by the same council.

Requirements of graduates of foreign medical schools shall conform to and be similar to the requirements as demanded of the applicants for the accepted medical schools in the United States and Canada. Such applications will be considered by the full board on individual merits.

C. The applicant must establish in a manner satisfactory to this Board that he is a physician duly licensed by law to practice medicine and that he is of high ethical and professional standing.

D. The applicant must establish that he has received special graduate training as follows in this order:

1. An approved internship of at least one year.
2. One year in the basic sciences or clinical studies basic to Urology; or one year residency in general surgery or internal medicine.
3. An approved graduated three-year residency in Urology, leading to competency in all its phases.

E. Applicant must have an additional period of not less than two years in the practice of Urology in the city of his office or place of practice.

F. The applicant must assure the Board that he is engaged in the full time practice of Urology.

FEE

The examination fee is $150. Fifty dollars must accompany the application. One hundred dollars must be paid when the application has been processed. Neither fee is returnable.

Applications for certification shall be examined by the credentials committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary.

REQUIREMENTS FOR CERTIFICATION

The requirements for certification include: evidence of hospital practice including the presentation of report of 25 representative (not necessarily consecutive) major urologic cases from practice, which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc; a written examination; pathology and oral clinical examinations.

A. Evidences of Hospital Practice and Case Reports:

An index, in consecutive order, of all major and minor urologic surgery (including endoscopy) done during the last two years of practice must be presented. This index must be verified by the various hospital administrators.

The candidate must present 25 records of major urologic cases completed since the candidate's residency training with hospitals, names, (or initials) and record numbers in which the candidate has had complete charge, responsibility and activity in all phases of the patient's care. These reports must be typewritten on 8½ by 11 paper and in duplicate, but need not be on any special form. Please file the duplicate in your own office. This second copy will be called for when and if it is needed.

Complete index lists must accompany the reports. If they are obtained from more than one hospital a separate index list of each group should be provided. These lists must state the operator's name at the head of each page, the name (or initials) of the patient, the hospital number, and the name and date of operation. Statements from the administrators of the hospitals attesting that the candidate was the operator must be included.

The applicant must personally prepare the case reports, remembering that they are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his competence as an urologist.

The case reports must be received on or before September 1.

B. Written Examination: The written examination is designed to test the candidate's preparation in and his knowledge of the whole field of urology, including the subjects: clinical urology, pathology, anatomy, physiology, embryology, bacteriology, physiological chemistry, and endocrinology. These may be held on certain dates simultaneously in different parts of the country at places convenient for candidates.

C. Pathology: The examination in pathology will consist of the identification of gross specimens and of sections of tissue observed through the microscope. It will be held at the time of the oral examination.

D. Oral-Clinical Examination: This will consist of discussions of urologic problems. The subjects forming the basis of this examination are urography; diseases of the genital organs, including the prostate and each portion of the urinary tract and the adrenals. It will ascertain the candidate's familiarity with recent literature, the breadth of his clinical experience, and his general qualifications for practice of urology.

The professional adaptability of each candidate will be investigated in an attempt to determine his ethical conduct and his attitude toward his patients and fellow practitioners.

Even more meaningful than dollars of expenditure are the percentages of personal consumer expenditures devoted to these different items. The 1956 percentage for all medical care items was 4.5 as compared with 4.4% in 1955. The actual proportion for physicians' services alone was 1.2 in both years, whereas there was an increase from 1.2 to 1.3% for hospital services. Within the medical care field these expenditures can be better compared by treating the total expenditures for all medical care as 100 cents, the medical care dollar. The proportion of the medical care dollar being paid to physicians has declined steadily from 1929, when it was 32.7 cents, to 27.2 cents in 1955 and 27.0 cents in 1956. On the other hand, the proportion of the medical care dollar spent for hospital services has climbed rapidly from 13.7 cents in 1929 to 27.7 cents in 1955, and to 28.5 cents in 1956. Likewise, the dentists' share has steadily declined over this same interval of time.

So the general conclusion as regards the proportion of the so-called consumer budget going for medical care is that the hospitals' share has been steadily rising until it was actually the largest share in both 1955 and 1956 and the physicians' share and the dentists' share have been steadily declining. During this period of time, medical progress has occurred at an exceedingly rapid rate and the improvements in the care of patients could scarcely have been achieved without some increase in the proportion of the consumer's dollar going for hospital services.

Wage Share for Medical Care.—For employees of industrial establishments who think in terms of weekly wages this story of the relationship of inflation to medical care can be presented in still another manner, the fourth comparison. Suppose that a physician's fee for a dozen office visits or a dozen house visits would have cost an entire week's wages before World War II. The important question to the wage earner is whether the same amount of medical service would cost more than a week's wages today or less than a week's wages. For physicians' fees the answer for 1956 is 48% of a week's wages and 61% for an obstetric case. The same number of days in a hospital which would have cost a full week's wages in 1935 to 1939 would have cost 99% of a week's wages in 1956. Since such comparisons do not make allowances for the great increase in taxation, particularly in the taxes deducted from the weekly pay envelope, the standard of comparison here might be considered on a basis of the entire Consumer Price Index—say, a "market basket" containing the proper number of units of each of the items which are priced in the development of the Consumer Price Index. That standard of comparison for 1956 was 54 rather than 100%, and those items which required more than 54% of a week's wages may be considered as having been less favorable in the cost to the consumer.

Physicians' Incomes.—Turning now to the physician rather than the patient for the fifth comparison, we find that according to the U. S. Department of Commerce the average level of physicians' incomes in the United States was 122% higher in 1951 than in 1929. The average level of incomes of all gainfully employed was 125% higher. Thus during a much longer period of time the incomes of physicians and the incomes of all gainfully employed people have moved up at about the same pace. The United States Department of Commerce does not regard the studies it made of the incomes of physicians immediately before World War II as sufficiently detailed and comprehensive to provide a standard of comparison with the present levels. But that agency has made estimates for the years since 1951 and these, like the data for 1929 and 1951, show that this trend is continuing.

Other and more detailed comparisons could be made, but these five historical comparisons of the extent of inflation in the medical care sector of our national economy indicate that this sector has performed reasonably well for the consumer. Many citizens are becoming worried about the extent of inflation. As citizens, physicians should not be content to rest on their oars but should participate in discussions in their communities on ways and means to stem this dangerous inflationary tide.

Some community leaders are already suggesting buyers' strikes like those of 1919; others are urging local groups to petition the federal government to curtail spending. But if these and other attempts fail and inflation continues, it behooves the members of the medical profession to continue their efforts to moderate the ravages of inflation in the medical care sector.

DIRECTORY OF APPROVED INTERNSHIPS AND RESIDENCIES

This issue of THE JOURNAL contains the Directory of Approved Internships and Residencies together with basic information concerning the approved examining boards in medical specialties as compiled by the staff of the Council on Medical Education and Hospitals. It includes statistical data and other specific information on all hospitals recommended by the Internship Review Committee for Council approval, and those approved by the Residency Review and Conference Committees for residency and fellowship education and training. Every effort is made to present this annually revised information so that it will be current and of value to medical students, interns, residents, physicians conducting such programs, hospital administrators, specialty board personnel, and others who may utilize it for reference. The directory represents a service function of the American Medical Association specifically concerned with the increasingly important field of graduate medical education and training. The Council is deeply grateful to the hospital staff personnel and administrators, to the officers of the specialty boards, and to other organizations whose cooperation and assistance has made possible this publication.

It is of interest to note that 852 hospitals offered a total of 11,895 intern positions for the year beginning July 1, 1956. Although this represents 15 fewer hospitals than were approved in the preceding year, it represents an increase of 279 positions available. In 1956 there were 6,845 graduates from approved medical schools in the United States. However, during the same year, 9,893 (83%) of the internship positions were filled, which indicates that over 3,000 were occupied by graduates of foreign medical schools or American graduates taking more than a single year of internship. There continues to be a trend for the larger teaching hospitals to have a higher percentage of internships occupied. Hospitals in the United States territories and possessions again showed the highest percentage of filled positions (97%), and the New England area had the highest intern-occupancy rate for the continental United States (89%).

In the area of graduate medical education represented by residencies, there were 5,134 approved separate training programs offering 28,538 appointments, of which 11,950 were at first-year level. These residency training programs were offered by 1,199 hospitals in which 81% of the available positions were filled. The seven specialties of surgery, internal medicine, pathology, obstetrics-gynecology, radiology, psychiatry, and pediatrics accounted for over three-fourths of the residencies offered. The percentage of available first-year residencies filled varied from 25% in public health to 100% in aviation medicine. Fields in which less than three-fourths of the positions offered were filled include allergy, general practice, neurology, otolaryngology, pathology, physical medicine, proctology, psychiatry, public health, pulmonary disease, and radiology. With the exceptions of obstetrics-gynecology, pathology, and thoracic surgery, in which the Council on Medical Education and Hospitals approves programs in concurrence with the board concerned, all other resident training programs are approved through residency review and conference committees.

The Council presents this annual report and directory with the hope that it will be of assistance to all individuals and organizations interested in medical education at the graduate level.

BEHIND THE SCENES

There are currently 17 residency review and conference committees which function effectively as joint liaison groups of the Council on Medical Education and Hospitals with various specialty boards and, in certain instances, the American College of Physicians, the American College of Surgeons, and the American Academy of General Practice, in the evaluation and approval of programs in graduate medical education. The story of the background and development of these important cooperative partnerships in this important aspect of medical education and training has been presented in THE JOURNAL (September 7, page 60). The value of these committees stimulated the development about three years ago of an Internship Review Committee on which there are representatives of the American Hospital Association, the Association of American Medical Colleges, the Federation of State Medical Boards of the United States, the American Academy of General Practice, and the Council on Medical Education and Hospitals of the American Medical Association.

The remarkable success of these cooperative committee activities in the difficult task of evaluating graduate medical education and training is largely due to the sincere interest, devotion, and hard work of the physician members who give so generously of their experience and time to these activities. These busy practitioners individually devote many hours to the comprehensive study of survey reports submitted by the Council's field staff which are forwarded to them throughout the year. Such preparatory study precedes the annual meetings of the committees. The Review and Conference Committee meetings, which are held from one to three times annually for each group, consist of one-or-two-day sessions which assure group evaluation of all programs, previously individually studied, prior to taking action. From time to time, these committees find the need for special surveys of a program or programs prior to taking definitive action. In such instances, qualified *physicians* in various parts of the nation are requested to make such regional studies and submit their findings to the Committee. These eminent physicians, likewise, give freely of their knowledge, experience, and time, frequently traveling considerable distances to assist the committees, chiefs of services, and hospital administrators toward the mutual goal of strengthening graduate medical education.

Graduate medical education in general and the medical profession at large owe much to the contributions which are constantly being made by the physicians who serve so loyally on the Internship Review Committee, the Residency Review and Conference Committees, and in the conduct of special regional evaluation studies. It is this work "behind the scenes" representing the knowledge, effort, thought, and time of leaders in the various specialty fields of medicine and in general practice which is too little known and not fully appreciated. The Council on Medical Education and Hospitals is pleased to take this opportunity to express its deep appreciation to its various cooperating partners and, in particular, to the members of the profession whose cooperation and efforts have made possible the successful development of this program.

FUTURE OF THE INTERNSHIP

At the 51st Annual Congress on Medical Education and Licensure held in February, 1955, a symposium was devoted to considering the role of the internship in modern medical education.[1] It was noted that the responsibilities and duties of the intern have been increasingly delegated to student clerks on one hand and to residents on the other. There was agreement that the internship can only be defended in terms of educational value to the intern and not on the basis of service benefit to the hospital and its staff.

No unanimous conclusions were reached, but the symposium did clearly bring forth the ambiguous position of the internship as a result of the continuing development of the undergraduate clinical clerkships and graduate residency training programs. Though no final answers were provided, the long-range value of the internship as presently structured was seriously questioned.

After a period of thoughtful study, the faculty of Johns Hopkins School of Medicine has proposed a revision of its educational program.[2] One feature of the revised program is the transformation of the last medical school year into what will be the equivalent of a 12 months' rotating internship on the clinical services of the Johns Hopkins Hospital.

The many aspects of this soundly conceived educational experiment will be worthy of the attention of all physicians. Certainly the challenge that it presents to the current pattern of the internship will be of great interest and may help to elicit the firmer answers regarding the future of the internship that are needed.

NUTRITION AND PREGNANCY

Few doubt that the nutritional status and dietary habits of a mother have an effect on the outcome of her pregnancy. Most are equally willing to agree that the nutritional status of the mother prior to conception is also important, thereby expanding the area of nutrition in pregnancy to include the nutrition of the adolescent girl. This rather broad field of somewhat specialized nutrition demands the attention of the general practitioner; yet reliable information on the effective nutritional management of these patients is not always available. The Council on Foods and Nutrition, in an effort to fill this need, has enlisted the cooperation of the University of Missouri and the Boone County (Missouri) Medical Society in sponsoring a symposium on nutrition in pregnancy, to be held October 11, 1957, in Columbia, Mo.

To present the role of nutrition during pregnancy, topics discussed will include the influence of the maternal nutritional level on the fetus and infant, the metabolic and biochemical changes in normal pregnancy, the effect of the reproductive cycle on nutritional status and requirements, and dietary habits during pregnancy.

During the past 25 years it has become possible to experimentally produce a variety of congenital malformations, in the offspring of certain animals, by nutritional regimens imposed upon the mother. However, in the transition of such animal experiments to congenital malformations in humans, great caution must be exercised. In order to clarify the facts that are known, nutritional experiments as an instrument of teratological research have been included in the presentation. A panel of epidemiologic studies on nutrition in pregnancy will complete the one-day program. The symposium will subsequently be published in THE JOURNAL.

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[1] Future of the Internship (Symposium), in Medical Education in the United States and Canada, 1954-1955: Part II. Proceedings of the 51st Annual *Congress* on Medical Education and Licensure, Chicago, Council on Medical Education and Hospitals, American Medical Association, 1955.

[2] Revised Program of Medical Education at Johns Hopkins, Johns Hopkins Mag. 8:4-11 (June) 1957.

COUNCIL ON MEDICAL SERVICE

CONTROL OF FATIGUE IN OLDER PERSONS

Theodore G. Klumpp, M.D., New York

This is the seventh of a series of papers on various aspects of aging. Each paper has been prepared for the Committee on Aging by an authority in the field. When completed, the series will be published in booklet form.

Fatigue is the most prevalent limiting factor in the pursuit of an active, happy, and useful way of life by older persons. Fatigue is both a symptom in itself and a symptom complex. Generalized fatigue is a vague physical, mental, and emotional depression known to everyone but difficult to describe specifically except through synonyms such as weariness, weakness, tiredness, exhaustion, lassitude, malaise, spent, strained, overworked, and "worn-out." It is often accompanied by loss of mental acuity, impairment of memory and perception, headache, disturbances of emotional and reflex reactivity, loss of visual acuity and accommodation, functional gastrointestinal and sphincter disorders, changes in cardiac rate, rhythm, and circulatory tone, and muscular weakness and tremor. Fatigue is also accompanied by many bodily chemical and endocrine changes, reference to which is beyond the scope of this paper.

Causes of Fatigue

Fatigue is an almost universal symptom of disease. It is often the chief complaint and sometimes the only one. In view of this, the symptom should always be taken seriously and steps taken to find the underlying cause. A painstaking analysis of the patient's physical, mental, and emotional status to disclose the possibility of disease, unhygienic patterns of living, or emotional conflicts that may be the basis of or contribute to undue fatigue should be instituted. Anemia, tuberculosis, diabetes, nephritis, cardiac decompensation, and thyroid dysfunction are a few of the many specific causes of undue fatigue. It is important to keep in mind that the "small cerebral hemorrhages" of Alvarez may be followed by easy fatigability and thus bring the patient to the physician's attention. The use of tobacco and alcohol—and this need not necessarily be excessive according to ordinary criteria—should be considered as possible causes of fatigue. But the physician should guard against arbitrarily banning these and other pleasures. They may represent the solaces of a lifetime and, indeed, are more likely to have value in overcoming fatigue than otherwise. In this as in other things, a brief trial period of abstinence or curtailment may tell the story.

The importance of obesity as an etiological factor in fatigue cannot be overemphasized. Loss of weight is usually of decisive benefit, although this may not always become apparent until the weight is stabilized at a lower level. Emotional factors often play an important role in fatigability. They should not be overlooked.

In considering the significance of fatigue, it must be kept in mind that it is also a normal incident of normal living. Some individuals are unduly sensitive to their own feeling tone and are unwilling to tolerate the minor deviations from the feeling of well-being that occur to everyone. Such patients need only reassurance. However, when the pattern of fatigue has recognizably changed, or the symptom is out of proportion to the age or mode of life, or it imposes an undue limitation on ordinary activities, it should not be dismissed lightly.

In the absence of specific disease, fatigue of older persons arises principally from the following five basic causes: (1) diminution of organic reserve, particularly of the heart and circulatory system, due to loss of vascular elasticity and arteriosclerosis; (2) decline of endurance of mental and emotional effort, the basis of which is the sum of the many organic changes in the central nervous system accompanying the aging process; (3) atrophy of disuse involving all systems of the body; (4) loss of incentive, motivation, and interest; and (5) decline of endocrine activity.

In attempting to control the fatigue of older persons, the physician is confronted with the paradox of a symptom that can never be entirely cured and yet can almost always be temporarily alleviated. Fortunately, much can be done by the physician to combat fatigue, but he must be willing to devote enough time to the patient to determine which of the basic causes is predominantly responsible. There is no rule of thumb regimen that is effective in all cases, and clinical trial with periodic changes in therapy and prescribed patterns of living may be necessary. Basically, fatigue can be alleviated: (*a*) by shrinking the individual's activities to the level where the symptom largely disappears or (*b*) by measures that will tend to enhance endurance and tolerance to fatigue.

President, Winthrop Laboratories.

Members of the Committee on Aging are Drs. H. B. Mulholland, Chairman, Charlottesville, Va.; Edward L. Bortz, Philadelphia; Henry A. Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; Theodore G. Klumpp, New York; Frederick C. Swartz, Lansing, Mich.; and Cecil Wittson, Omaha. Committee Staff: Mr. George W. Cooley, Secretary, and Mr. Herbert B. Norton, Research Assistant.

For a long time the approach to the problem of fatigue was thought to be simple. A brief history of the patient's mode of life was obtained with one objective in mind—to cut out something. It made little difference how little the individual was doing—if the patient was tired, something had to go. For instance, if the patient did nothing more than sit in a rocking chair all day long, he was no doubt advised to stop rocking and go lie down.

The enormous benefaction of rest, particularly as a therapeutic measure, cannot be questioned. But too much of a good thing, or a good thing improperly applied, may be harmful. What surgeons have learned in the practice of early ambulation we are beginning to realize has application to many medical problems and particularly to the problem of fatigue of the aged. Rest is not a universal panacea for fatigue—as thoughtful experience discloses over and over again. Many of these patients can be reduced to a vegetative existence and plied with sedatives and somnifacients and they are still tired.

What has been lost sight of is the fact that the pattern of modern civilized living, particularly in the United States, is specifically designed to avoid physical activity and stress. We have applied our enormous inventive genius and resources to the development and widespread distribution of labor-saving devices to the point where physical exertion is virtually eliminated. Young people are able to maintain their muscular and neurocirculatory tone in reasonably good condition through sports and play. As we grow older, we tend to give up these things, and, with the help of labor-saving devices, now including electric golfmobiles, we begin to suffer rapidly and too early in life from atrophy of disuse. This brings with it, among other things, a loss of functional reserve of the heart and other muscles, including those of the vascular tree. As a consequence, the slightest added stress brings on undue fatigue.

Perhaps we have lost sight of some of the following basic principles of physiology and biology that have application to this problem. 1. Functional capacities are maintained only through use. 2. Such capacities can be augmented, within limits, only through repeated stress. 3. Atrophy of disuse sets in rapidly and those capacities that are relinquished are soon lost. 4. Functional capacities decline with age, but they will decline less rapidly if they continue to be used to their fullest extent!

Prevention of Fatigue

With these thoughts in mind, it is evident that the most effective approach to the problem of fatigue of old age lies in prevention through the maintenance of an adequate neuromuscular reserve against stress. Fortunately, some degree of the same reserve can be regained at any time except where its loss is due to advanced organic disease. This may be accomplished by means of a regimen of graded exercise. The form of the exercise will depend on available resources and resourcefulness, but every effort should be made to avoid drudgery and to find some physical activity that is fun and that the patient will be inclined to continue of his own volition. Golf, swimming, hiking, bicycle riding, gardening, badminton, and tennis are among the many pleasurable forms of activity that will serve the purpose. Here, too, the rules of common sense are still applicable and too much exercise as well as too much rest can only defeat its own purpose. Along with exercise, the physician should see to it that the patient also obtains an adequate amount of sleep at night. If mental or emotional disturbances interfere with this, there is ordinarily no overriding reason why a good somnifacient should not be prescribed. A short rest at midday is of definite benefit in some cases, and almost all individuals can train themselves to sleep for half an hour if they will earnestly try.

At the same time the mental and emotional fatigue that comes at the end of a trying but sedentary day can be miraculously dispelled with a little physical exercise. It takes a particular charge of will power to undertake physical activity when fatigue is already present and all of nature seems to be crying for rest instead, or perhaps a drink. But over and over again it has been demonstrated that physical activity in such circumstances brings a degree of refreshment and renewed energy that nothing else can equal.

Undue fatigue of older persons occurs so much more commonly among those who are overweight that this circumstance warrants special emphasis. The remedy is obvious, easy to prescribe, but hard to take. A patient once told me, "What I need, doctor, is a will-power pill." In addition to dietary instructions, the importance of exercise should not be discounted, despite traditional handed down hearsay to the contrary. Its greatest value lies in its stimulating effect on endocrine activity, perhaps the thyroid in particular, and in overcoming the tendency to sleep and snooze too much—a common counterpart of obesity.

There can be little doubt that endocrine deficiencies contribute to the fatigue of old age in some individuals. This is particularly true during the menopause, and in such cases the administration of estrogens is often of benefit. Whether or not a related change takes place in men is still a matter of dispute. Nevertheless, experience suggests that small doses of testosterone are also sometimes of value in overcoming easy fatigability of older men. Thyroid extract is occasionally helpful, particularly where the basal metabolic rate is low and the serum cholesterol level elevated, but otherwise it is more often disappointing than not.

The sympathetic amines, such as methamphetamine (Desoxyephedrine) hydrochloride, phenylephrine (Neo-Synephrine) hydrochloride, and amphetamine (Benzedrine) have a potent effect in counteracting undue fatigue. As a general rule, they should not be given until other measures have failed. They are, of course, contraindicated in hypertension, coronary, and other vascular disease. Contrary to older pharmacological concepts, they are best administered in conjunction with a small dose of a sedative which permits the ergogenic effect of the amine to occur without the otherwise accompanying nervousness and sleeplessness. The sympathetic amines are particularly useful for fatigue in obese patients. Needless to say, patients receiving drugs for fatigue should be seen by the physician at regular intervals.

There is no reliable correlation between how hard a person works and degree of fatigue. If anything, fatigue of older persons is seen more commonly among those patients who do not have enough to do. Too often they feel that their life work is done and their fatigue has its origin in boredom and loss of incentive and interest. Over and over again, when a crisis arises or something of deep interest comes along, these individuals miraculously lose their fatigue.

It is, of course, difficult for a physician to prescribe an interest where there is no interest. Unfortunately "make work" programs often fail because they are undertaken half-heartedly and the necessary compelling motivation is lacking. However, this should not serve as a deterrent, because a new and absorbing interest is the only real salvation for some of these patients. When they find it, as some do, their symptoms disappear and they are given a new lease on life.

COUNCIL ON NATIONAL DEFENSE

ARMED FORCES PROGRAM FOR RESIDENCY DEFERMENT

The following report is authorized for publication by the Council on National Defense as a matter of interest to recent medical graduates who have an obligation for military service.

Frank W. Barton, *Secretary.*

Established in 1954 with the cooperation of the Selective Service System, the Department of Defense inaugurated its Armed Forces Reserve Medical Officer Commissioning and Residency Consideration Program as a method to fulfill needed medical specialty requirements for the armed forces. Each year a certain number of young men are selected for recommendation for deferment in order to obtain residency training in specialties needed by the military departments. The number selected each year is based upon the projected need for specialists.

In July of each year, all interns with a liability for military service are mailed an Informational Bulletin and application blank for participation in the program. Selections for deferment for residency training are made in the latter part of September, and all participants are allocated to the three military departments for the purpose of obtaining a commission.

In the 1957 program, about 2,800 participating residents will be authorized to be in a deferred status. About 1,000 will start their first year of training and the remainder will be in their second, third, or fourth year. It is expected that about 1,000 interns will be recommended for deferment each year.

In the programs for 1956 graduates, there were 3,667 participants. Of the 2,203 who requested deferment, 1,200 were selected. There were 1,464 interns who requested active duty immediately following internship. All who requested will be brought to duty during July-September, 1957.

Selections for recommendation for deferment will be made in the specialties as indicated in the table.

Number of Selections for Recommendation for Deferment, by Specialty

Specialty	Army	Navy	Air Force	Total
Anesthesiology	20	16	7	43
Dermatology and syphilology	8	0*	0*	8
General practice	0	18	58	76
Internal medicine	65	72	12	149
Neurology	4	0*	12	16
Neurosurgery	2	0*	0*	2
Obstetrics and gynecology	50	12	18	80
Ophthalmology	25	12	0*	37
Occupational medicine	3	0	10	13
Orthopedic surgery	7	18	0*	25
Otolaryngology	28	24	47	99
Pathology	25	36	30	91
Pediatrics	40	36	24	100
Physical medicine and rehabilitation	0*	4	10	14
Preventive medicine and public health	3	12	12	27
Psychiatry	30	44	60	134
Radiology	24	12	0*	36
Surgery	60	72	0*	132
Urology	6	12	0	18
Total	400	400	200	1,100†

* Requirements in this specialty filled by training programs for career officers.

† An overselection of 20% will be made to allow for drop outs.

The intern and residency training programs continue to be the main source of procurement for career medical officers. Recently, the Department of Defense issued a nine-page Informational Bulletin outlining the program and explaining how the program applies to 1957 medical graduates. It contains a number of typical questions on the program, with answers. Copies of the Informational Bulletin may be obtained by writing the Assistant Secretary of Defense (Health and Medical), Department of Defense, Washington 25, D. C.

MEDICINE AND THE LAW

ANALYSIS OF PROFESSIONAL LIABILITY CLAIMS AND SUITS

This is the 16th in a series of articles dealing with medical professional liability. An editorial (page 360) and a chronological résumé (page 364) appeared in THE JOURNAL, *Feb. 2. The preceding articles in this series have been published weekly in* THE JOURNAL *from Feb. 9, 1957, to April 6, and since then intermittently.*—ED.

A study of the subject of medical professional liability would not be complete without a review of the experience of physicians who have been a party to an actual claim or suit. In an effort to collect detailed information in this regard, questionnaires were mailed in July, 1956, to a scientifically selected sample of 7,577 physicians consisting of roughly 5% of the members of the American Medical Association. These questionnaires solicited opinions on various aspects of medical professional liability and also inquired whether a professional liability claim or suit had ever been brought against the physician.

Two follow-up questionnaires were sent to those who had not replied. When the second follow-up was sent, a post card was enclosed which asked the physician to check one of the following: "A professional liability claim or suit has *never* been filed against me; A professional liability claim *has* been filed against me; or, A professional liability suit *has* been filed against me." Physicians were asked to return the post card if, for some reason, they would not return the questionnaire.

Counting the questionnaires and post cards, an 83.0% return was received. From the total returns it was possible to ascertain that 12.8% of the physicians responding had been involved in a claim or suit and 87.2% had not.

The total number of usable questionnaires constituted 71.2% of the original sample. The report analyzing these questionnaires appeared in the Aug. 3, 1957, issue of THE JOURNAL in the section Medicine and the Law.

As the second step in this phase of the survey, a completely different questionnaire—a request for a case history—was sent to the 748 physicians who indicated that they had been involved in a medical professional liability claim or suit. If, on the first questionnaire, the physician indicated he had multiple claims, one questionnaire was sent to him for each claim or suit reported.

A total of 661 usable case histories were received and are the basis of the following analysis. The data and percentages reported are based on total claims, not total physicians. Every claim involved a physician, but one physician may have been involved in more than one claim. The results are also qualified by the fact that the case history questionnaires were sent to physicians who indicated on the first questionnaire that they were involved in a claim or suit. These claims, therefore, or the physicians who had them, were not selected from a random sample but constitute a follow-up of a select group.

A further qualification is the fact that this analysis constitutes the experience of a group of living physicians. This point becomes important in a time series analysis. For example, a tabulation of the year in which the claim was brought reflects the experience of physicians living today, not the total or even a sample of the total number of claims brought against physicians in that period. Thus, the farther away the period involved is from the present, the less representative the sample is of that period because of the natural attrition of the physician population.

In the following tables we have reported the facts as they have been given by physicians who had a professional liability claim or suit brought against them. In presenting these 661 case histories every effort has been made to abstain from interpretation and editorial comment.

The geographical regions referred to in some of the tables are those established by the United States Department of Commerce. By way of explanation, the New England states include Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. The Middle Atlantic states include New York, New Jersey, and Pennsylvania. The South Atlantic states include Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida. The East North Central states include Ohio, Indiana, Illinois, Michigan, and Wisconsin. The East South Central states include Kentucky, Tennessee, Alabama, and Mississippi. The West North Central states include Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. The West South Central states include Arkansas, Louisiana, Oklahoma, and Texas. The Mountain states include Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada. The Pacific states include Washington, Oregon, and California.

Time Claim Was Brought—Ten-Year Periods

A review was made of the "case histories" to determine, by geographical area, the percentage of claims brought in each 10-year period beginning from 1900 to the present. Again, caution is urged in interpreting these figures, for they do not mean that the increase in all professional liability claims or suits is as marked in the period from 1939 to present as one might assume by a hurried reference to table 1. The figures refer only to claims against living physicians who returned the professional liability questionnaire.

TABLE 1.—*Percentage of Claims Filed by Time and Region*

	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1957	Unknown
New England	...%	...%	5.9%	17.7%	38.2%	38.2%	...%
Middle Atlantic	...	...	4.4	12.3	21.0	61.6	0.7
South Atlantic	1.6	1.6	9.7	22 6	12.9	51.6	...
East North Central	...	0.9	7.7	24.8	23.9	42.7	...
East South Central	...	5.9	5 9	...	11.7	76.5	...
West North Central	1.5	1.5	4.5	25.8	18.2	48.5	...
West South Central	...	...	9.4	12.5	25.0	53.1	...
Mountain	...	...	...	15.1	36.4	45.5	3.0
Pacific	...	...	3.1	16.0	20.4	60.5	...
United States	0.3%	0.6%	5.3%	17.9%	21.9%	53.7%	0.3%

TABLE 2.—*Percentage Breakdown by Years of Practice—Five-Year Periods*

	Interns and Residents	Less than 1 Yr.	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and Over	Unknown
New England	2.9%	2.9%	17.7%	23.6%	2.9%	11.8%	14.7%	11.8%	2.9%	2.9%	5.9%	...%
Middle Atlantic	0 7	...	16.6	14.5	13.0	13.8	13.8	11.6	8.7	5.1	...	2.2
South Atlantic	3 2	3.2	19.4	17.8	16.1	11.3	9.7	11.3	3.2	...	4.8	...
East North Central	0.9	1.7	13.6	15.4	20.5	20.5	9.4	6.8	3.4	0.9	5.2	1.7
East South Central	...	5 9	17.6	17.6	29.4	...	5.9	11.8	11.8	...	...	...
West North Central	1.5	1.5	19 7	19.7	13.6	15.2	6.1	10.6	1.5	4.6	4.5	1.5
West South Central	...	...	15.6	34.4	12.5	12.5	12.5	6.3	...	3.1	3.1	...
Mountain	...	...	21.2	30.3	6.1	18.2	9.1	6.1	3.0	...	3.0	3.0
Pacific	2.5	1.9	17.3	19.8	19.8	19.8	7.4	4.3	3.1	...	1.2	3.1
United States	1.5%	1.5%	17.1%	19.1%	15.9%	16.0%	9.8%	8.3%	4.2%	2.0%	2.8%	1.8%

Years in Practice at Time of Alleged Incident

One of the questions on the questionnaire was "How long had you been in practice at the time of the alleged incident?" The answers received have been included in table 2, shown in percentages and broken down by five-year periods. The median years in practice vary from 8.0 in the Mountain states to 16.6 in the Middle Atlantic states. The median for the United States as a whole is 13.4 years.

Nature of Practice and Place Alleged Act Occurred

The physicians involved in the reported claims and suits were for the most part engaged in active private practice. The percentage of claims in the six specific categories most frequently mentioned is shown, by geographical area, in table 3.

Inasmuch as most of the more serious medical and surgical procedures are performed in hospitals it was not surprising to find that the highest percentage of the acts of negligence alleged in the cases reported occurred in hospitals. The answers to the questionnaires revealed that the alleged negligent acts occurred in hospitals, 67.2%; doctor's office, 23.9%; patient's home, 6.3%; miscellaneous (place of employment, doctor's home, jail, etc), 2.0%; and place not stated, 0.6%.

Type of Practice Involved in Reported Claims and Suits

In the majority of instances the claims and suits reported were against physicians engaged in full-time specialty practice. The figures further reflect, however, that the alleged incident on which the claim or suit was based occurred to physicians who were not board-certified. Table 4 shows, by geographical area, the percentage of claims involving physicians by type of practice and the percentage of claims by board-certified physicians. It cannot be taken for granted from these figures that the incident on which the action was based occurred in the field in which the physician was certified.

A further analysis of the information supplied in this regard revealed that the alleged incidents occurred most frequently in the following fields of medical practice: surgery, 30.9%; medicine, 20.0%; orthopedics (including surgery), 19.7%; obstetrics and gynecology, 12.5%; neurology and psychiatry, anesthesiology, radiology and others, 16.9%. No significant variation from nationwide figures was evident in any geographical area.

TABLE 3.—*Nature of Practice—Percentages by Geographical Area*

	Active Private Practice	Intern, Resident, Employee of Hospital	Industry	Local Government	Armed Forces	University	Other
New England	97.1%	2.9%	.. %	...%	...%	...%	...%
Middle Atlantic	97.1	2.2	0.7	...	...	...	...
South Atlantic	85.5	11.3	1.6	...	1.6	...	...
East North Central	94.0	3.4	0.9	1.7	...	...	...
East South Central	94.1	5.9	...	...	...	...	...
West North Central	90.9	4.6	3.0	...	...	1.5	...
West South Central	93.8	3.1	...	...	...	...	3.1
Mountain	91.0	3.0	...	...	...	3.0	3.0
Pacific	91.4	6.2	...	1.2	1.2	...	...
United States	92.8%	4.7%	0.8%	0.6%	0.5%	0.3%	0.3%

Nature of Alleged Negligent Act

The case histories disclosed the percentage breakdown shown in table 5 with respect to the alleged bases for the claims or suits reported.

TABLE 4.—*Type of Medical Practice—Physician Board-Certified*

	Full-time Specialist	General Practitioner	Part-time Specialist	Intern or Resident	Other or Unspecified	Board-Certified	
						Yes	No
New England	47.1%	38.2%	11.8%	2.0%	...%	29.4%	70.6%
Middle Atlantic	70.3	13.8	14.5	0.7	0.7	46.4	53.6
South Atlantic	64.8	10.4	21.0	4.8	...	17.7	82.3
East North Central	41.0	35.0	21.4	2.6	...	21.4	78.6
East South Central	52.9	35.3	11.8	...	...	11.8	88.2
West North Central	25.8	50.0	22.7	1.5	...	13.6	86.4
West South Central	40.6	53.1	6.3	...	...	28.1	71.9
Mountain	42.4	45.5	9.1	...	3.0	33.3	66.7
Pacific	52.5	33.3	10.5	3.7	...	30.9	69.1
United States	50.4%	31.7%	15.3%	2.3%	0.3%	28.9%	71.1%

Persons Performing Negligent Act and Those Joined in Claim or Suit

In approximately three-fourths of the cases reported, the alleged negligent act was performed by the reporting physician. Table 6 indicates the profession of individuals who allegedly performed the negligent act in the remaining cases. The second column of the table shows the percentage of cases with more than one defendant and the types of joint-defendants involved.

Secondary Causes of Claims or Suits

In a majority of the case histories reported it was indicated that some factor in addition to the alleged negligent act prompted the individual to file a claim or suit. The enumeration of these factors in table 7 discloses that these secondary causes may be grouped in four categories: 1. Factors under the control of the medical profession. In this group are to be found 27.3% of the secondary causes. 2. Pressure or influence exerted on the claimant by outsiders. In this group are to be found 22.6% of the secondary causes. 3. The patient himself as a producing factor. In this group are to be found 24.6% of the secondary causes. 4. The fourth factor is the miscellaneous group, which accounts for 25.5% of the secondary causes.

TABLE 5.—*Primary Bases for Claims or Suits*

Poor operative result	24.7%
Poor medical result	19.3
Error in diagnosis	10.1
Foreign bodies left in patient	8.6
Burns	7.9
Assault, lack of consent	4.0
Abandonment	2.8
Error in prescription	2.6
Poor neuropsychiatric results	2.2
Improper commitment of *incompetents*	2.1
Faulty equipment	1.9
Sterilization procedures	1.9
Blood *transfusion accidents*	0.9
Miscellaneous or no answer	11.0

This information indicates that it is within the power of physicians themselves to remove a considerable percentage of secondary precipitating causes for filing claims or bringing suits. This may be accomplished by refraining from criticism of the care and treatment accorded by other physicians and by utilizing discretion and tact in billing and collection procedures. This latter fact is substantiated by the significant number of responses grouped under "miscellaneous" which indicate that pressure in collecting the physician's bill was a precipitating cause for the professional liability claim or suit. Claims may be reduced by handling ancillary medical conditions personally and promptly or by referring patients to another physician. Room for improvement is also possible by taking care in maintaining proper records and inviting consultation when alcohol or drug addicts are involved.

TABLE 6.—*Persons Involved in Negligent Act and Claims or Suits*

	Negligent Act Performed by	Joined in Claim or Suit
Reporting physician	72.5%	...%
Another physician	11.2	47.4
Nurse	6.8	8.7
Intern or resident	3.2	7.8
Technician	2.0	1.8
Anesthetist (not M.D.)	2.0	3.0
Pharmacist	0.3	1.3
Hospital	...	28.7
Miscellaneous or unknown	2.0	1.3

TABLE 7.—*Secondary Bases for Claims or Suits*

Under Physician's Control	
Careless comment about another physician	25.2%
Patient had another disease or disability which progressed badly	2.1
Outside Influence	
Action prompted by attorney	15.4
Action prompted by *relative*	7.2
Patient a Factor	
Claim brought for financial profit	13.8
Mental disability	7.9
Alcohol or narcotic addict	2.9
Miscellaneous, Not Possible to Classify	25.5

Information Concerning Claimants

In submitting case histories, physicians were asked to supply information concerning the sex, age, and occupation of the person bringing the claim or suit. With respect to age it appears that the majority of claimants are between 29 and 40. The median age for the United States as a whole is 34.4 years. The median age by geographical area ranges from 23.8 years in the East South Central states to 40.4 years in the Pacific states. With respect to the sex of the claimant, the questionnaires indicated that nationwide 55.1% of the claims and suits were filed by females and 43.1% by males; in the remaining cases (1.8%) the sex of the claimant was not stated.

Table 8 indicates a percentage breakdown, by geographical area, of the occupations of the persons filing the claims and suits reported.

Attempts at Settlements and Reasons

It appears that some of the claimants in the reported claims and suits attempted for a number and variety of reasons to negotiate a settlement.

TABLE 8.—*Occupation of Claimants*

	Housewives	Laborers and Farmers	Craftsmen, Foremen, Etc.	Service Workers, Including Protective and Domestic	Clerical Workers	Sales Workers	Retired	Semiprofessional Worker	Professional Worker	Proprietors, Managers, Officials	No Answer and Unemployed
New England	32.4%	5.9%	8.8%	2.9%	11.8%	2.9%	5.9%	...%	5.9%	...%	23.5%
Middle Atlantic	30.4	6.5	9.4	3.6	2.2	5.1	3.6	3.6	2.2	2.2	31.2
South Atlantic	30.6	9.7	8.0	9.7	6.5	3.2	1.6	...	6.5	...	24.2
East North Central	38.5	12.8	6.8	6.8	3.4	4.3	2.6	1.7	1.7	1.7	19.7
East South Central	41.2	...	5.9	...	5.9	...	...	5.9	...	...	41.1
West North Central	28.8	18.2	9.1	7.6	1.5	7.6	3.0	4.5	1.5	1.5	16.7
West South Central	40.6	6.3	15.6	6.3	3.1	...	3.1	3.1	...	...	21.9
Mountain	39.4	6.1	12.1	...	3.0	3.0	3.0	...	6.1	...	27.3
Pacific	29.0	10.5	6.8	4.9	5.6	3.7	3.1	4.9	1.2	3.7	26.6
United States	32.7%	9.8%	8.5%	5.3%	4.3%	4.1%	3.0%	3.0%	2.4%	1.8%	25.1%

A much smaller percentage of the physician defendants were apparently interested in a settlement. For the United States as a whole, an attempt was made by the physician to settle the case out of court in 19.5% of the cases. In 73.5% of the cases no attempt was made by the physician to settle and in 7% no answer was given. The few physicians who did seek settlement reported the reasons shown in table 9.

TABLE 9.—*Reasons Physicians Attempted Settlement*

Advice of attorney	26.7%
To avoid unfavorable publicity	24.1
Responsibility apparent	13.8
Cheaper than court costs or to avoid appearance in court	11.2
To settle for smaller amount than verdict might bring	7.8
To save time	4.3
Avoid strain of litigation because of poor health	2.6
Miscellaneous	9.5

Disposition of Claim or Suit

A significant percentage of the claims reported became the basis for a suit. Of the claims reported, 43.1% developed into a suit; 32.4% of the claims were settled or compromised by a money payment; 17.1% were dropped; and the remainder or 7.4% of the claims were still pending or their status was unknown. Information with respect to the status and disposition of the suits reported is shown in table 10. It was also reported that claimants obtained a money settlement or an award, following a suit, most frequently in cases involving obstetrics and gynecology, and anesthesiology.

Figures concerning the disposition of settled claims and suits indicate that 53.1% of the cases were compromised or settled or decided in favor of the claimant. In cases finally decided by the courts only 18.7% were decided for the claimant. The basis for this percentage does not include cases which are pending or those dropped or compromised.

Professional Liability Insurance Status of Physicians

Case histories reflect that nationwide 93.2% of the physicians responding were covered by medical professional liability insurance at the time of the alleged incident, on which the reported claim or suit, was based. The next information requested was whether, as a result of the claim or suit, the physician experienced any difficulty in obtaining or renewing his professional liability insurance coverage. This information is reflected in table 11, by geographical area.

TABLE 10.—*Status or Disposition of Suits Reported—Percentage Breakdown*

	Pending	Decided for Claimant	Decided Against Claimant	Dropped	Compromised
New England	21.4%	...%	35.7%	...%	42.9%
Middle Atlantic	34.0	8.9	21.4	14.3	21.4
South Atlantic	12.1	6.1	48.5	12.1	21.2
East North Central	15.7	11.8	43.1	11.8	17.6
East South Central	...	...	66.7	33.3	...
West North Central	18.2	13.6	45.5	4.5	18.2
West South Central	35.3	5.9	35.3	11.8	11.8
Mountain	10.0	20.0	50.0	20.0	...
Pacific	9.2	10.5	48.7	10.5	21.1
United States	18.2%	9.5%	41.1%	11.6%	19.6%

Conclusions

The tables naturally promote speculation. For instance from these histories it is possible to picture the composite claimant as 34.4 years old, a housewife, who was, most probably, dissatisfied with an allegedly poor operative result. The national com-

MEDICAL NEWS

ILLINOIS

State Anesthesiologists Meeting.—The Illinois Society of Anesthesiologists will meet Oct. 5 in the Beaubian Room of the Prudential Building, Chicago. A social hour will be held at 5 p. m., with dinner at 6 p. m. and the program beginning at 7:30 p. m. Dr. Richard Foregger, director, department of anesthesiology, Marquette University School of Medicine, Milwaukee, Wis., will present "The Respiratory Valve." A business meeting will follow.

Chicago

Appoint Director of Medical Education.—Dr. Robert E. Slayton has been appointed director of medical education at St. Luke's Hospital. His duties are to strengthen and direct the educational program for the hospital intern and resident staff. Dr. Slayton previously was associated with St. Luke's as a resident in medicine from 1951 to 1953; he was a fellow in medicine at the Joslin Clinic, Boston, 1953-1954, and later became a lieutenant in the United States Navy.

Medical History Meeting.—An open meeting of the Society of Medical History of Chicago will be held at the Institute of Medicine Oct. 9 at 8 p. m. Program topics and speakers follow: "Concepts of Psychic Functions—East and West," Ilza Veith, Ph.D., associate professor of the history of medicine, University of Chicago; and "Franklin D. Roosevelt, the Common Cold, and American History," Dr. Noah D. Fabricant, clinical assistant professor of otolaryngology, University of Illinois College of Medicine.

Heart-in-Industry Conference.—The Chicago Heart Association, the Chicago Association of Commerce and Industry, and the Central States Society of Industrial Medicine and Surgery announce the fifth heart-in-industry conference, a memorial to Gustav Freund II, to be held Oct. 11 at the Morrison Hotel. The theme, "Living with Your Job," will be discussed by Philip M. Hauser, Ph.D., University of Chicago; Dr. Benjamin Boshes, Northwestern University; Dr. Roy R. Grinker, Michael Reese Hospital; Dr. Allen McLean, International Business Machines Corporation; Mr. S. DeWitt Clough, Chicago Heart Association; Dr. Edward C. Holmblad, Industrial Medicine Association; Mr. William F. Brown, U. S. Steel Corporation; and Mr. Norman G. Brodie, Ford Motor Company. Luncheon speakers include Dr. Robert Collier Page, consultant in manpower development, New York City; and Mr. Oscar Mayer, chairman of the board, Oscar Mayer and Company. For information write the Chicago Association of Commerce and Industry, 1 North La Salle, Chicago 2.

MARYLAND

Personal.—The Royal Medico-Psychological Association of Great Britain has invited Dr. Leo Kanner, chief, children's psychiatric service, Johns Hopkins Hospital, Baltimore, to deliver the annual Maudsley Lecture in London, England, in November, 1958. Dr. Kanner will be the third psychiatrist for the West and the first child psychiatrist to be so honored.

General Practice Meeting.—The ninth annual scientific assembly of the Maryland Academy of General Practice will be held at the Tidewater Inn, Easton, Oct. 9-10. Nine category I credit hours will be given for attendance. The program includes the following topics by out-of-state speakers:

Toxemias of Pregnancy, Dr. Washington C. Winn, professor of clinical obstetrics, Medical College of Virginia, Richmond.

Approach to Fluid Balance and Blood Electrolytes, Dr. R. V. Kron, medical department, Mead Johnson Company, Evansville, Ind.

Vascular Disease in the Diabetic, Dr. Howard F. Root, physician-in-chief, Deaconess Hospital, Boston.

Surgery of Acquired Valvular Heart Disease and Results, Dr. Robert P. Glover, clinical professor of thoracic surgery, Hahnemann Medical College and Hospital, Philadelphia.

TB Case Finding, Diagnosis and Teatment for the General Practitioner, Dr. Julius Wilson, director of medical education, National Tuberculosis Association.

A panel discussion, "Diagnosis of Heart Disease," is scheduled. The banquet will be held Oct. 9. A ladies' program has been arranged. For information write the Maryland Academy of General Practice, 3722 Greenmount Ave., Baltimore 18, Md.

MASSACHUSETTS

Dr. Dana Honored.—Dr. George W. Dana, of Wellesley Hills, medical staff director of Boston's New England Center Hospital was named the first recipient of the Medical Achievement Travel award, presented by the Purdue Frederick Company of New York, pharmaceutical firm. The award, "for his distinguished contributions to postgraduate

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

medical education," was made at a reception at the Barbizon Plaza Hotel in New York City. In announcing the award, Benjamin Schneider, president of the Purdue Frederick Company, said, ". . . The highlight of Dr. Dana's projected trip abroad will be a series of visits to medical meetings, seminars, teaching centers, hospitals and research facilities in England, France, Italy, and Sweden."

Personal.—Dr. James B. Dealy Jr., Newton, has been appointed radiologist-in-chief at Boston's Peter Bent Brigham Hospital, succeeding Dr. Merrill C. Sosman, who is currently on a visiting and lecture tour of Australia.——Dr. Patrick F. Butler, Boston, fellow emeritus of the American College of Radiology, was presented by Holy Cross College with an honorary doctor of science degree at recent commencement exercises in Worcester.——Dr. John J. Lorentz, of Methuen, has been appointed physician-in-charge of the Boston Dispensary Rehabilitation Institute and assistant professor of physical medicine and rehabilitation at Tufts University School of Medicine. Both are units of the New England Medical Center. Dr. Lorentz formerly was assistant medical director of the Bay State Medical Rehabilitation Clinic and the department of physical medicine of Massachusets General Hospital.

NEW YORK

Appoint Hospital Director.—Dr. George L. Warner, assistant director of Marcy State Hospital, has been appointed director of Craig Colony, state hospital for epileptics in Sonyea, Livingston County, succeeding Dr. William C. Johnston, who has returned to his former post in the department of correction. Dr. Warner has been at Marcy State Hospital for 14 years, serving as assistant director and acting director. He began his career with the state in 1923 at Marcy State Hospital, progressing through successive grades until his appointment as clinical director at Matteawan State Hospital for the Criminally Insane in 1931. In 1941 he became clinical director at Utica State Hospital, and two years later he transferred to Marcy. He is a diplomate of the American Board of Psychiatry and is currently president of the Mohawk Valley Neuropsychiatric Society.

Centers for Retarded Children.—A grant of $45,000 to establish the Buffalo Diagnostic and Counselling Study Center for Mentally Retarded Children has been announced. This center will be an integral part of the rehabilitation center of the Children's Hospital and Crippled Children's Guild. The Interdepartmental Health Resources Board, which has the responsibility of the initiation and development of health programs of interdepartmental concern, is promoting such centers. The Buffalo center is the first major clinic of its type to be established in the Upstate New York area. Complete evaluation, diagnosis, and treatment will be offered to children suspected of being or known to be mentally retarded. In addition to a complete medical and psychological diagnosis, an estimate will be made of their capabilities, with emphasis laid upon what the child may be able to do rather than on his disabilities. The center will also act as a consultation service to private physicians, social agencies, and schools and will cooperate with all agencies serving the mentally retarded child. Other features of the program will be teaching of undergraduate and postgraduate medical students, graduate physicians, nurses, psychologists, and social workers in modern techniques of treatment, evaluation, and diagnosis of mental retardation.

New York City

Public Health Positions Available.—The City of New York is seeking applicants to serve as senior public health physicians (District Health Administration) with its Department of Health. Physicians in these positions administer the community health services of a large health district, a health district with unusual or specialized problems, or a special public health program. New York City is divided into 30 public health districts. The larger districts are equivalent to cities of over 300,000 population. Candidates must be graduates of a school of medicine and must have one year of formal appointment as an intern in an approved general hospital. In addition, they must have a master's degree in public health and three years of full-time paid experience. Candidates who hold a licence to practice medicine in states other than New York will be required to obtain a New York State license by the end of the third month of their employment. The salary range for senior public health physicians is $11,200 to $13,600 a year. If conditions warrant, the Civil Service Commission may examine for these positions in such locations outside New York City as Boston, Chicago, Cleveland, and Washington, D. C. For information write Mr. Arnold de Mille, Director of Recruitment, The City of New York, Department of Personnel, 299 Broadway, New York 7, N. Y.

GENERAL

Undergraduate Essay Contest.—The American College of Chest Physicians announces the 1958 prize essay contest offering three cash awards: first prize, $500; second prize, $300; and third prize, $200. The contest is open to undergraduate medical students throughout the world. Essays may be written on any phase of the diagnosis and treatment of chest diseases (heart and/or lung). The contest closes April 15, 1958. For information write the American College of Chest Physicians, 112 E. Chestnut St., Chicago 11, Ill.

Winners of the 1957 contest and their subjects are as follows:

Henry Buchwald, Columbia University College of Physicians and Surgeons, New York City, "The Surgical Treatment of Coronary Heart Disease."

James T. Post, University of California Medical School, San Francisco, "The Incidence of Pulmonary Tumors in Mice Exposed to Aerosols of Therapeutic Agents."

Stephen A. Kieffer, University of Minnesota Medical School, Minneapolis, "A Trial Septal Defect: An Evaluation of Surgical Closure."

Anesthesiologists Meet in Los Angeles.—The annual meeting of the American Society of Anesthesiologists will be held Oct. 14-18 at the Hotel Statler, Los Angeles. An address will be given by Major General Paul I. Robinson, M. C., executive director, Office for Dependents' Medical Care, Washington, D. C., on Oct. 15. The following panel discussions are planned: Muscle Relaxants: The Changing Picture; Pediatric Care; Effectiveness of Mechanical Ventilators; Patient with Cardiac Disease as a Surgical Risk; Anesthesia and the Midbrain; Instrumentation Applicable to the Teaching and Clinical Practice of Anesthesiology; and Office Practice of Anesthesiology. Foreign speakers and their topics include Dr. Edith Simandl, Second Surgical University Clinic, Vienna, Austria, "Experience with Stellate Ganglion Block and Paravertebral Sympathetic Block Treatment in Sudeck's Disease," and Dr. Joachim Bark, Tubingen University, Tubingen, Germany, "Limiting Factors in Resuscitation." Motion picture sessions and exhibits are planned. A dinner-dance is scheduled for Oct. 17. For information write the American Society of Anesthesiologists, Inc., 188 W. Randolph St., Chicago 1.

Southwestern Medical Association Meets in El Paso.—The annual meeting of the Southwestern Medical Association will be held Oct. 9-11, with headquarters at the Hotel Paso del Norte, El Paso, Texas. Addresses will be given by Dr. Robert F. Thompson, president of the El Paso County Medical Society, and Dr. Celso C. Stapp, president of the association. Following are the guest speakers: Dr. William Parson, University of Virginia School of Medicine, Charlottesville; Dr. Oscar Creech Jr., Tulane University of Louisiana School of Medicine, New Orleans; Dr. E. E. Muirhead, Southwestern Medical School of the University of Texas, Dallas; Dr. Frederick C. Bost, president, American Academy of Orthopedic Surgeons; Dr. J. S. De Tar, past-president, American Academy of General Practice; Dr. Robert H. Hingson, Western Reserve University, Cleveland; Dr. Howard P. House, University of Southern California School of Medicine, Los Angeles; Dr. Phillip Thygeson, University of California School of Medicine, San Francisco; and Dr. Edward A. Banner, Mayo Clinic, Rochester, Minn. Scientific and technical exhibits are planned. The banquet will be held Oct. 11. A ladies' program has been arranged. Registration fee is $15. For information write Southwestern Medicine, Suite 700 Electric Building, El Paso, Texas.

Fellowships in Allergy.—The American Foundation for Allergic Diseases has announced the availability of postdoctoral fellowships in research and clinical allergy for two years each, with stipends as follows: first year, $4,500; second year, $4,750; laboratory and travel expenses for two-year period, $750. Candidates must be graduates of approved medical schools and must have completed one or two years of the graduate training required as a preliminary to certification by the Boards of Internal Medicine or Pediatrics; they are to devide their time between research and clinical training, and in the second year 10% or 15% of a candidate's time might be devoted to teaching. The respective institutions have taken the necessary steps to have this training credited toward the subspecialty in allergy by the Board of Internal Medicine and the Board of Pediatrics.

Requests for applications should be sent directly to one of the following, in whose field the candidate would like to work: Dr. Colin M. MacLeod, professor of Research Medicine, University of Pennsylvania, 820 Maloney Clinic, 36th and Spruce Streets, Philadelphia 4, Pa., or Dr. Herman N. Eisen, Professor of Medicine (Dermatology), Washington University School of Medicine, 600 South Kingshighway, Saint Louis 10, Mo. Applications should be filed no later than Dec. 15. Notification will be mailed to successful candiates by Feb. 1, 1958.

Military Surgeons Meeting in Washington, D. C.—The 64th annual convention of the Association of Military Surgeons of the United States will be held Oct. 28-30 at the Hotel Statler, Washington, D. C. Theme for the convention is "Professional Excellence—The Criterion of Military Medicine." The presidential address will be given by Col. Amos Koontz, M. C., National Guard, Maryland. Topics for the general sessions include disaster medicine and the challenge of peace in the Pacific. The following panel discussions will be held:

Medical Education in the Federal Services, moderated by Dr. Frank B. Berry, assistant secretary of defense (health and medical).

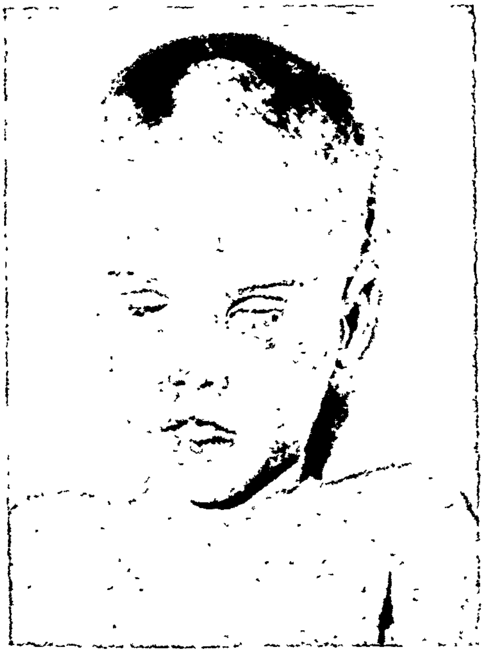
Surgery of the Large Intestine, with Brig. General Sam F. Seeley, M. C., U. S. Army, chief, professional division, Office of the Surgeon General, Washington, D. C., presiding.

Management of Patients with Coronary Artery Disease, a joint medical and surgical panel.

Training of Enlisted Medical Technicians, moderated by Dr. Russell A. Nelson, director, Johns Hopkins Hospital, Baltimore.

Medical motion pictures will be shown throughout the convention. An international luncheon ceremony will be held Oct. 29. Entertainment includes a U. S. Army Band Concert, Oct. 29, and a dinner-dance, Oct. 30. Scientific exhibits and a special ladies' program are planned. For information write the Association of Military Surgeons in the United States, Suite 718, New Medical Building, 1726 Eye St., N. W., Washington 6, D. C.

Seek Identity of Slain Boy.—Police Commissioner Thomas J. Gibbons of Philadelphia believes that some physician in the United States might help solve a brutal murder case that has been baffling detectives of that city for more than seven months. Last Feb. 25 the nude body of a white boy 4 or 5 years old, wrapped in a cheap blanket, was found in a cardboard carton in an isolated section of Philadelphia. Multiple bruises indicated that death from head injuries occurred violently between 3 and 14 days before discovery of the body. The victim was 40½ in. tall, weighed 30 lbs., had crudely cut brown hair, blue eyes, a full set of baby teeth, neatly clipped finger and toe nails, and a small L-shaped scar under his chin.



Face of the dead child.

Dr. Joseph Spelman, medical examiner for Philadelphia, reports there also was a half-inch long crescentic scar on the righ side of the neck, and a short, well-healed hairline scar overlying the third interspace one and one-half inches to the left of the anterior midline. There were two small old hairline healed scars in the right femoral and right inguinal triangles which may represent surgical incisions, according to Dr. Spelman.

"We feel that the child might readily be recognized by a physician who has treated him," wrote Police Commissioner Gibbons in a letter to the American Medical Association. "It is possible that he was a resident of the Philadelphia area. However, the case has been so widely publicized here that this now seems doubtful. My purpose in writing is to appeal to you for assistance in publicizing this mysterious case nationally to the medical profession."

Physicians who may be able to supply a clue to the dead boy's identity are asked to notify Philadelphia detective headquarters (telephone MUnicipal 6-9700) or their local police department.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Sept. 7, 1957		Sept. 8, 1956
	Paralytic Type	Total Cases	Total Cases
New England States			
Maine	..	1	2
New Hampshire	..	...	...
Vermont	..	1	...
Massachusetts	..	1	5
Rhode Island	..	...	...
Connecticut	..	3	6
Middle Atlantic States			
New York	4	12	42
New Jersey	1	9	25
Pennsylvania	..	1	10
East North Central States			
Ohio	1	10	46
Indiana	8	4	19
Illinois	6	32	103
Michigan	2	25	48
Wisconsin	2	16	59
West North Central States			
Minnesota	4	4	15
Iowa	1	7	51
Missouri	1	8	29
North Dakota	..	...	3
South Dakota	..	...	...
Nebraska	2	5	19
Kansas	..	4	19
South Atlantic States			
Delaware	..	...	2
Maryland	..	...	3
District of Columbia	7	7	2
Virginia	3	5	15
West Virginia	..	1	5
North Carolina	2	5	14
South Carolina	2	3	7
Georgia	1	2	28
Florida	2	7	16
East South Central States			
Kentucky	2	3	14
Tennessee	2	3	6
Alabama	..	...	3
Mississippi	..	2	12
West South Central States			
Arkansas	1	1	9
Louisiana	2	3	28
Oklahoma	4	8	6
Texas	9	22	47
Mountain States			
Montana	..	1	3
Idaho	..	1	6
Wyoming	1	1	7
Colorado	1	2	13
New Mexico	..	2	5
Arizona	..	...	8
Utah	2	3	8
Nevada	..	...	6
Pacific States			
Washington	2	2	17
Oregon	..	1	6
California	3	16	57
Territories and Possessions			
Alaska	1	1	...
Hawaii	2	2	2
Puerto Rico	3	4	1
Total	79	251	857

Pacific Coast Fertility Society.—The seventh annual meeting of the Pacific Coast Fertility Society will be held Nov. 7-10 at the El Mirador Hotel in Palm Springs, Calif. Scientific sessions will be devoted to presentations related to new advances in the management of clinical infertility. The meeting is open to all physicians and research workers. Registration fee is $10. There is no fee for interns, residents, or armed services medical officers. Program chairman is Dr. Albert L. Banks, 707 Broadway, Seattle. Advance registration may be made by writing to Dr. Edward T. Tyler, Secretary-Treasurer, 921 Westwood Blvd., Los Angeles 24, Calif.

Midwest Physicians Meeting.—The midwest regional meeting of the American College of Physicians will be held Oct. 12 at Lincoln Hall, University of Illinois, Urbana-Champaign. A total of 21 papers are scheduled for presentation, including "Reversible Hypertension and Unilateral Renal Artery Disease," by Dr. Derek D. Gellman, Berkeley Fellow, Middlesex Hospital, London, England. Dr. Richard A. Kern, president, American College of Physicians, will speak on "Some Personal Observations in the Near and Middle East" at the dinner at the Urbana-Lincoln Hotel. A program of ladies' entertainment has been arranged. For information write Dr. B. Smith Hopkins Jr., 602 W. University Ave., Urbana, Illinois.

Audiology and Speech Fellowships.—Establishment of two fellowships in audiology and speech at Northwestern University, Evanston, Ill., has been announced by the American Hearing Society, its member agency, the St. Paul Hearing Society, and the university. The training program will be geared to preparing qualified persons for work in local hearing societies. The fellowships, made possible by a bequest from the Myers Foundation of St. Paul, Minn., are to be known as the Reine Humbird Myers Fellowships. Each fellowship will pay $3,000 a year for two years. For information write Mr. Crayton Walder, executive director, American Hearing Society, 1800 H St., N. W., Washington 9, D. C., or to Raymond Carhart, Ph.D., School of Speech, Northwestern University, Evanston, Ill.

CANADA

University Survey of General Medical Practice.—A study of general medical practice in Canada is being carried out by the School of Hygiene of the University of Toronto with aid from a Rockefeller Foundation grant of about $115,500 available over a two-year period.

The study, already begun, is employing many of the techniques, such as personal interviews, direct observation of the work of the participating physicians, and statistical methods, developed in a similar study at the University of North Carolina, Chapel Hill. Because of great variations in population density, economic prosperity, medical practice habits, and methods of payment for medical care in different parts of Canada, however, the University of Toronto study will be conducted on a Dominion-wide basis. The program has been divided into stages, the first of which, limited to the Province of Ontario, is already well advanced.

In its survey the university examines the type and volume of illness treated by general medical practitioners. The university also intends to study the types of practice found in several areas in an effort to determine the type of family doctor needed in the diverse economic and geographic regions of Canada. The project has the backing of the Canadian Medical Association and Canadian College of General Practice, and the financial support of the Canadian Department of Public Health and the Canadian Life Insurance Officers' Association.

LATIN AMERICA

Yellow Fever Virus in Panama.—The Government of Panama has informed the Pan American Sanitary Bureau, World Health Organization, that the virus of yellow fever has been isolated from a batch of *Haemagogus lucifer* mosquitoes captured in Peñas Balces, Province of Colón. This locality is near the Trans-Isthmian Highway, 20 miles southeast of the city of Colón.

FOREIGN

Dr. Guleke Honored.—The International College of Surgeons has conferred upon Prof. Dr. Nicolai Guleke, professor emeritus of the University of Jena, Germany, and former professor of the Surgical University Clinic, Marburg, Germany, the designation of "Master Surgeon." Only five others have been given this distinction in the College's 22 years of existence. Prof. Guleke developed operations for rectal cancer, joint diseases, and tumors within the chest. The honor was announced at ceremonies which climaxed the recent congress of the U. S. and Canadian Sections of the college.

European Federation of Surgeons.—Two meetings of the newly formed European Federation, International College of Surgeons, have been announced. One will be held in Vienna Oct. 18-20 and the other during the World's Fair in Brussels May 15-18, 1958. The Vienna congress will be under the direction of Prof. Dr. Felix Mandl and Prof. Dr. Leopold Schonbauer, of the surgical department, University of Vienna. The meeting will bring together the German, Austrian, Dutch, Swiss, and other sections. About 75 papers will be presented. Sessions will be held in Billroth-Haus, Vienna. Nine surgeons will participate in a symposium on "Surgery of Athletic Injuries." Scientific themes will include "Diseases of Connective Tissues," "Modern Therapy of Malignancies," "Errors in Diagnosis and Therapy," "Bone Tumors," and "Contrast Visualizations of Internal Organs, Their Value and Dangers." Entertainment will include a reception in City Hall, a visit to the opera, and tours. Inquiries about scientific matters should be addressed to Dr. Felix Mandl, Reichsratsstrasse 11, Vienna I.

The Brussels congress will bring together the Austrian, Belgian, English, Finnish, French, German, Greek, Italian, Dutch, Spanish, Swiss, and Turkish sections. The meeting will be under the auspices of the Belgian section and the direction of Prof. Dr. John Henri Oltramare, of the University of Geneva and director of the European Federation, and Drs. Leopold Lambert, André Sondervost, and G. F. Van Keerbergen, president, secretary, and vice-president, respectively, of the Belgian section. For information write the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10, Ill.

DEATHS IN OTHER COUNTRIES

Sir Charles Read.—The president of the Royal College of Obstetricians and Gynecologists, Sir Charles Read, was taken ill aboard his yacht recently and died soon after reaching a hospital in Dartmouth, England. Sir Charles was appointed president of the Royal College of Obstetricians and Gynecologists in 1955 and was reelected this year. He was an honorary fellow of the American Association of Obstetrics, Gynecology, and Abdominal Surgeons and the American Gynecological Society. Over a period of years he had instructed medical students at Charing Cross Hospital and Medical School and other institutions, and postgraduate students at Hammersmith and Chelsea Hospital for Women. Born in Dunedin, New Zealand, Sir Charles studied at the University of Otago, Dunedin, and the Otago Medical School, where he won honors in clinical medicine.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Part I.* Various Centers, Sept. 3-4. Sec., Dr. John B. Hubbard, 133 South 36th St., Philadelphia 4.

MEDICAL SPECIALTY BOARDS

American Board of Anesthesiology: *Oral.* Washington, Oct. 28-Nov. 1. Various locations in the United States and Canada, July 18. Final date for filing application is Jan. 18. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology: *Oral.* Baltimore, Oct. 11-13. Final date for filing application was April 1. Sec., Dr. Beatrice Maher Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine: *Written.* Oct. 21. *Oral.* Los Angeles, Sept. 11-14. Final date for filing applications was Feb. 1. Exec. Sec., Dr. W. A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology. Various locations in the United States and Canada. *Part I.* Jan. 2. *Part II.* Chicago, May 7-17. Final date for filing application is September 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Oral.* Chicago, Oct. 7-11. *Written.* January 1958. Final date for filing application was July 1. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Part I.* April 3-4, Rochester, Minnesota, Denver, Colorado, Washington, D. C. Final date for filing application is Nov. 30. *Part II.* New York City, Jan. 29-31, 1958. Sec., Dr. Sam W. Banks, 116 South Michigan Avenue, Chicago 3.

American Board of Otolaryngology: Chicago, Oct. 7-11. Final date for filing application was in April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology: *Oral and Written. Pathologic Anatomy and Clinical Pathology.* New Orleans, Sept. 26-28. Final date for filing application is August 15. Sec., Dr. Edward B. Smith, Indiana University Medical Center, Indianapolis 7.

American Board of Pediatrics: *Oral.* Chicago, Oct. 11-13. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Oral and Written Examination.* San Francisco, Oct. 31-Nov. 2. Final date for filing case reports was July 1. Corresponding Sec., Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *In Public Health. Oral and Written.* Cleveland, Nov. 7-9. Sec., Dr. Thomas F. Whayne, 3438 Walnut St., Philadelphia.

American Board of Proctology: *Oral and Written. Parts I and II.* September. Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

American Board of Psychiatry and Neurology: New York, Dec. 16-17. San Francisco, March 17-18. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S. W., Rochester Minn.

American Board of Radiology: Washington, Sept. 23-28. Final date for filing application was June 1. Chicago, May 20-24. Final date for filing application is Jan. 1, 1958. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part II.* Buffalo, Sept. 23-24; New Haven, Oct. 21-23; Indianapolis, Nov. 18-19; Cincinnati, Dec. 16-17; New Orleans, Jan. 13-14; Durham, N. Car., Feb. 10-11; Baltimore, March 10-11; Chicago, May 12-13; Los Angeles, June 16-17 and Portland, Oregon, June 20-21. Sec., Dr. John B. Flick, 22' So. 15th St., Philadelphia 2.

American Board of Urology: *Written examination.* Various cities throughout the country. *Pathology and Oral Clinical.* February 1958. Location not decided. Exec. Secretary, Mrs. Ruby L. Griggs, 30 Westwood Road, Minneapolis 16.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, Sept. 6, and the closing date for registration was July 1, 1957. Sec., Dr. William H. Tuttle, 1151 Taylor Ave., Detroit 2.

ical Society; served as vice-president of the Blue Island Chamber of Commerce; on the staffs of Ingalls Memorial Hospital in Harvey and St. Francis Hospital, where he died Aug. 1, aged 66, of heart disease.

Quay, William Hendricks, Wilkes-Barre, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1894; an associate member of the American Medical Association; veteran of the Spanish-American War; medical examiner for the selective service boards during World Wars I and II; formerly practiced in Meadville, where he was on the staffs of the City and Spencer hospitals; served on the staff of the Titusville (Pa.) Hospital; died in Bloomsburg, July 7, aged 86.

Shaver, William Trantham, Albemarle, N. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served as president of the Stanly County Medical Society and the Seventh District Medical Society; veteran of World War I; on the staff of the Stanly County Hospital; surgeon for the Southern Railway; died July 16, aged 63, of heart disease.

Averill, Zelpha Walker, Mansfield, Ohio; Laura Memorial Woman's Medical College, Cincinnati, 1897; served on the board of the Mansfield General Hospital; died July 20, aged 84.

Baker, Bryant Orland ⊕ Dallas, Texas; Baylor University College of Medicine, Dallas, 1938; member of the American Academy of General Practice; died July 24, aged 56, of acute myocardial infarction and coronary arteriosclerosis.

Banks, Eldridge James ⊕ Ellisville, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; died in Jackson July 29, aged 85.

Barnett, Spurgeon Hemperley, Little Rock, Ark.; St. Louis College of Physicians and Surgeons, 1917; Kansas City (Mo.) College of Medicine and Surgery, 1920; died July 16, aged 71.

Barshay, Bernard, Castle Point, N. Y.; Tufts College Medical School, Boston, 1927; service member of the American Medical Association; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; chief of the laboratory service, Veterans Administration Hospital, where he died May 16, aged 54, of coronary occlusion.

Christie, Ralph Conklin, Long Beach, Calif.; University of Nebraska College of Medicine, Omaha, 1909; an associate member of the American Medical Association; veteran of World War I; formerly member of the city council and of the city water commission; died Aug. 2, aged 74, of cancer.

Farnham, Waldo Clay, St. Petersburg, Fla.; Northwestern University Medical School, Chicago, 1910; veteran of World War I; died in the Mound Park Hospital June 24, aged 75, of myocardial infarction and coronary thrombosis.

Farrage, James H., Santa Ana, Calif.; University of Louisville (Ky.) Medical Department, 1911; an associate member of the American Medical Association; on the staff of the Santa Ana Community Hospital; died in St. Joseph Hospital June 6, aged 78, of cerebral thrombosis.

Guy, Robin Jefferson, Paynesville, Mo.; St. Louis College of Physicians and Surgeons, 1910; died June 13, aged 69.

Hawks, Edwin Andrew Jr., Tulsa, Okla.; Washington University School of Medicine, St. Louis, 1895; died May 30, aged 83, of a heart attack.

Hersohn, William Wolfe ⊕ Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1933; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; veteran of World War II; associated with the Atlantic City Hospital and the Shore Memorial Hospital in Somers Point, where he died July 17, aged 56, of acute myocardial infarction.

Howell, Harriett, San Jose, Calif.; Hahnemann Hospital College of San Francisco, 1896; died June 25, aged 82.

Laroche, Armand ⊕ Rutland, Mass.; University of Montreal Faculty of Medicine, Montreal, Quebec, Canada, 1922; member of the American Trudeau Society; assistant superintendent, Rutland State Sanatorium; died in the Kerbs Memorial Hospital, St. Albans, Vt., July 6, aged 60, of emphysema and renal tuberculosis.

Lesem, Alexander Marx ⊕ San Diego, Calif.; College of Physicians and Surgeons, Los Angeles, 1914; served as city and county health officer; died July 16, aged 77, of a heart attack.

Loftus, Michael Emmet, Indianapolis; Louisville (Ky.) Medical College, 1904; died July 23, aged 77, of a heart attack.

McCartin, John Edward, Boston; Tufts College Medical School, Boston, 1908; on the staff of the Massachusetts General Hospital; died June 22, aged 78, of coronary occlusion.

McGuire, Roy Alvin ⊕ Fairfield, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Academy of General Practice; past-president of the Jefferson County Medical Society; formerly practiced in Brighton, where he was mayor and a member of the school board; member of the school board in Fairfield; died July 19, aged 76.

FOREIGN LETTERS

CANADA

Aseptic Meningitis with Rubelliform Rash.—In 1956, Toronto virologists described the occurrence of 96 cases of aseptic meningitis, in about half of which a virus was probably involved. In the *Canadian Medical Association Journal* (77:1, 1957) they report a further outbreak in Toronto and vicinity in 1956. There were 115 cases in children, and the most interesting clinical feature was the presence of a rubelliform rash in 50. Many other children were treated at home, and some adults were also affected, with an encephalitis occurring in most. The cell count in the spinal fluid was unusually high, with many neutrophils in the differential count, but the fluid was sterile. The condition seems to be new in Toronto, and some cases were probably due to a virus related to Echo virus type 9. Strains isolated by tissue culture were pathogenic for suckling mice and caused myositis. They were not neutralized by antiserums to viruses of Coxsackie types A9 or B1-5.

Parotitis with Herpangina.—Howlett and Somlo reported four cases of what they considered a new entity, parotitis and herpangina associated with the presence of Coxsackie virus, group A (*Canad. M. A. J.* 77:5, 1957). The patients had a parotitis, fever, and herpetiform lesions in the mouth and throat. In all four cases the presence of Coxsackie virus was demonstrated in throat washings, and in two cases in the stool as well, by the characteristic lesions produced in suckling mice that had developed paralysis and myositis. No evidence of mumps or herpes virus infection was found.

Fluoridation Ruled Illegal.—The Supreme Court has ruled that metropolitan Toronto cannot add fluorine compounds to the water it supplies to 13 municipalities. The argument began when one of the municipalities, Forest Hill, sued Toronto, which was proposing to fluoridate the water. The first local decision was that the senior authority was perfectly entitled to do so, but the Ontario Appeal Court reversed this decision, and when Toronto carried its case to the Supreme Court the latter endorsed the Ontario Appeal Court's decision by five to two. The majority decision says that the new Metropolitan Toronto bylaw is not aimed at making the supply of water more pure and wholesome but is designed "to cause the inhabitants of the Metropolitan area, whether or not they wished to do so, to ingest daily small quantities of fluoride in the expectation that this will render great numbers of them less susceptible to tooth decay." Hence the bylaw is considered to have exceeded the powers conferred by the Ontario legislature. This raises the question as to whether other Ontario municipalities that have already fluoridated their water are acting beyond their legal powers. The situation could be put right by fresh legislation at the next session of the Ontario Provincial Parliament.

Voluntary Hospital and Medical Insurance.—At the end of 1955, about 6,700,000 persons, or nearly 43% of the Canadian population, had some form of voluntary hospital insurance, and 5,800,000, or 37%, of the population had medical insurance contracts to assist in paying for physicians' services. The hospital insurance figures must be read in conjunction with the fact that in four provinces there are public hospital schemes run by province and/or municipality and covering most of the population, so that voluntary coverage there is confined either to persons not eligible to participate in the provincial scheme or to those wishing additional benefits such as private ward care. Thus, though the rate of growth of membership in voluntary schemes has flattened out in recent years, it still continues. The percentage increases in membership during 1955 were as follows: nonprofit hospital insurance 6%, private hospital insurance 8%, nonprofit medical insurance 16%, and private medical insurance 8%. Ontario is the leading province as regards percent of population covered, both in voluntary hospital insurance (71%) and in medical care insurance (51%).

The Smoker's Lung.—Hamilton and co-workers (*Canad. M. A. J.* 77:177, 1957) made histological sections of the bronchial mucosa from autopsy material. Classification was made as to nonsmokers, smokers, and those with bronchogenic carcinoma. (In the last group the lung opposite to that affected by the tumor was sectioned.) They observed the following five types of morphologic change in the lining epithelium of the bronchi: basal cell hyperplasia, stratification, squamous metaplasia, transitional metaplasia, and intermediate change. The most significant difference between the three groups was that basal cell hyperplasia was present in 80% of patients with carcinoma, 86% of smokers, and only 40% of nonsmokers. It is impossible to say whether this change is due to smoking or is even

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The items in these letters are contributed by regular correspondents in the various foreign countries.

precancerous, though it certainly suggests that something has caused an altered growth and maturation pattern in the epithelium.

Symposium on Fluothane.—The July issue of the *Canadian Anaesthetists' Society Journal* contains a symposium on the newly studied fluorinated hydrocarbon, Fluothane (2-bromo-2-chloro-1,1,1-trifluoroethane), a volatile anesthetic. This drug has been tried in several cities. Chang and co-workers used it as an anesthetic in 310 patients, in 120 with a closed and in 190 with a semiclosed technique. Induction was either by thiopental intravenously or by gas, oxygen, and Fluothane by mask. The chief advantages of the drug are that it is noninflammable and nonexplosive and does not cause respiratory irritation. It reduces bleeding and allows good control of respiration. Recovery is moderately rapid and postoperative vomiting rare. However, it does cause cardiovascular depression, often severe, and also respiratory depression, and it may cause cardiac arrhythmias. Relaxation is only moderate, and the drug is incompatible with epinephrine.

After using it on 1,112 patients in Quebec City, Hudon found that it gave a pleasant induction and led to no anxiety provided it was administered smoothly and without a sudden increase in concentration, which can cause cardiac depression and dangerous hypotension. The absence of bronchoconstriction, laryngospasm, and excessive bronchial secretion aids pulmonary ventilation. It decreases capillary oozing and seems to combat shock. MacKay of Toronto used it on 203 patients and found that it could be used by the open drop method for mass casualties. He strongly recommends avoidance of a closed method and finds the use of a continuous flow nonrebreathing circuit (nitrous oxide and oxygen) with a temperature compensated vaporizer, the Fluotec, most satisfactory. Other reports drew attention to the value of Fluothane in pediatric anesthesia and in neurosurgery.

Is Tonsillectomy Always Justified?—Le Riche and Stiver (*Canad. M. A. J.* 77:109, 1957) made a statistical study of the tonsillectomies performed on subscribers to a nonprofit medical care plan in Ontario over a six-month period. There were 4,281 cases, and the annual tonsillectomy rate per 1,000 participants in 12 counties was found to vary between 29.0 and 3.5 (average 19.8). Another study showed that the rate was no higher in subscribers than among those not covered by insurance and that more rural than urban patients lost their tonsils. Because of the great variation in rates by county, the authors examined the preoperative and postoperative histories of 1,000 patients, mostly children, to see whether they were any healthier after the operation. There was a marked reduction in physicians' calls for nasal and pharyngeal infections in the year after operation. On a basis of call for acute pulmonary infections, 54% of the patient appeared to have benefited. No benefit was foun in patients with allergic rhinitis. In 135 patient there was no preoperative history of pulmonary o pharyngeal disease, and it is concluded that th tonsils were removed because of their appearanc

DENMARK

Treatment of Alcoholism.—*Five articles in Ugeskri for læger* for June 6 and July 4, 1957, throw som light on what is being done to combat alcoholism Dr. I. Venge gives an account of the ambulatoriu and the sanatorium which have been in operatio since April, 1953. The ambulatorium is attached the Copenhagen City Hospital, and the sanatoriu is established at Jaegersborg. The two are under the same chief and are served by the same staff. Disulfiram is given to all patients, the only contraindication being some serious disease such as uncompensated or severe heart disease. Venge believes too much must not be hoped for from psychotherapy, especially when applied on any wholesale scale. The best form of psychotherapy is by means of a close association between the patient and a social worker acting as a custodian under the supervision of a psychiatrist. More than 33% of the author's patients show improvement, a higher rate than is observed in the treatment of other neurotic and psychopathic conditions. Dr. L. M. Sonne reports on the work of the psychiatric department of the Bispebjerg Hospital to which 610 alcoholics were admitted in 1955. While 28% of the male psychiatric patients admitted were the victims of alcoholism, this was so with barely 5% of the women. In 33% there was a history of attempted suicide.

Cancer of the Lung.—*The thoracic surgery department of the Oresund Hospital in Copenhagen issued a study by Dr. C. M. Smidt entitled "The Diagnosis of Lung Cancer." A comparison of the symptoms of the 172 patients found to be suffering from lung cancer with symptoms of 823 other patients not suffering from cancer has led to the conclusion that in its early stage lung cancer presents no specifically characteristic symptoms. Such roentgenographic changes as atelectasis in a patient of the lung cancer age may be suggestive but none of these changes can be said to be pathognomonic of lung cancer. Bronchography is a useful supplement to the diagnosis of lung cancer, but by itself it does not warrant either the confirmation or the invalidation of such a diagnosis. In Smidt's material there were 77 patients in whom the diagnosis of lung cancer could not be confirmed or ruled out by a combination of tests. They were therefore subjected to an exploratory thoracotomy. Thirty-two patients were found to have lung cancer.*

ISRAEL

Poliomyelitis.—A dramatic drop in the incidence of poliomyelitis was recorded in June, 1957, as compared with June, 1956—6 cases and no deaths as compared with 64 cases and 3 deaths; in May, 1957, there were 4 cases and no deaths compared with 26 cases and 3 deaths in May, 1956. While Ministry of Health sources are still cautious about attributing this decline to the national Salk vaccine program, there is an unmistakable feeling of quiet jubilation among its officials. A breakdown of the first six months of this year as compared to 1956 shows 10 cases in January as compared with 10 cases and one death in January, 1956; February, no cases as compared with 4 and one death; March, 3 cases as compared with 4 and one death; and April, no cases compared with 8 and one death. Of the children who contracted the disease this June, only one had been inoculated with Salk vaccine.

Hearing Tests on School Children.—E. Korine (*Harefua* 52:262, 1957) reported a series of 17,000 audiometric hearing tests in school children. Hearing loss in children is not always noticed by the parent or the teacher, but the child with defective hearing is severly handicapped in his studies or may be wrongly accused of laziness. The results of these tests showed that 7% of the school children suffered from loss of hearing; 5% needed medical treatment for such conditions as otitis media, adenoiditis, and tonsillitis. One in a 1,000 needed rehabilitation through lip reading and hearing aids. These findings are almost identical with those of the United States and England. It may be assumed that, of Israel's 300,000 school children, about 15,000 need otological treatment and supervision for loss of hearing.

Idiosyncrasy to Meprobamate.—E. Davis (*Harefuah* 53:37, 1957) reported two cases of hypersensitivity occurring during meprobamate medication. Both cases are outstanding, because after the patients had taken only one tablet of 400 mg. of meprobamate, an allergic reaction occurred in the form of generalized urticaria in the first patient four hours and in the second five hours after the tablet was taken. After four days, the reaction subsided without specific therapy. One of the patients had a history of allergy to penicillin, and the second had had allergic reactions to various medicaments. These two reactions appeared among 20 patients treated with the drug.

Cortisone in the Treatment of Sterility.—According to Polishuk and Hochstaedt (*Harefuah* 53:57, 1957), the increased production of androgenic hormones by the adrenal cortex, as seen in the adrenogential syndrome and related conditions, impairs the menstrual mechanism by a direct effect on the endometrium and by depressing the pituitary gonadotropic hormones, thus causing amenorrhea, nonovulatory cycles, or corpus luteum deficiencies. In patients complaining of sterility, cortisone has been given to inhibit stimulation of the adrenal cortex, decrease androgen production, and permit a normal relationship between the pituitary gonadotropins and the ovaries. Eleven patients were selected for treatment with cortisone according to the following criteria: (1) sterility of over two years' duration, (2) presence of ovarian dysfunction (amenorrhea, nonovulatory cycles, or corpus luteum defects), (3) clinical signs of masculinization, and (4) increased excretion of 17-ketosteroids. In all patients any other cause of sterility was first ruled out. Cortisone was given for six to eight weeks. Initial doses were 75 mg. daily for two weeks, with the dose gradually decreased to 25 mg. daily. Seven of these patients became pregnant. Of these, four had normal deliveries, two have not yet been delivered, and one had a tubal pregnancy. The effects of cortisone administration on ovarian function lasted from four to six months. No abnormalities were noted in the infants born to the mothers.

JAPAN

Orphans.—The Japanese children's bureaus are caring for over 60,000 orphans, many of whom owe their lives in part to some members of the United States armed forces. The present reduced budget provides food at a bare subsistence level, and the women who care for the children day and night are grossly underpaid. Bales of discarded clothes shipped from the United States help out the budget. The diet of these children is notably deficient in calcium and vitamins. One group of veterans who saw service in Japan has formed a club, the purpose of which is to extend moral and financial aid to about 600 orphans on the Isle of Sado. This is the first real helping hand stretched across the sea for the helpless orphans.

Homicidal Instructors.—On two occasions students in Tokyo were beaten to death by one of their instructors. Corporal punishment by a teacher is strictly forbidden, but the school authority lacks sufficient psychiatrists to weed out the misfits from the teaching profession.

PERU

Giant Hypertrophic Gastritis.—At a meeting of the Faculty of Medicine of Lima, Dr. Daniel Becerra de la Flor, auxiliary professor of surgery, reported a case of giant hypertrophic gastritis. Less than 12 cases of this disease have been reported. A 74-year-old woman was admitted to the hospital in August, 1955. She had been in good health until five months prior to admission when she began to suffer fr dull epigastric pain radiating to the umbilicus and the right hypochondrium. In the two months before she was admitted, the pain became continuous and more severe, and anorexia, nausea, vomiting, loss of weight, insomnia, and increasing weakness developed. The vomiting occurred after food intake, and at times the vomitus contained food particles ingested four or five days earlier. When vomiting occurred without the ingestion of food, the vomitus was acholic and consisted of glairy mucus. No hematemesis nor melena were noted. A tumor could be felt in the epigastrium and right hypochondrium, but early in the course of the disease this would disappear when massaged. This would be followed by a relief of the symptoms, but later, massage gave no relief.

Physical examination revealed an emaciated woman with marked edema of the legs and tenderness over a firm, irregular, epigastric tumor. The blood protein level was 5 Gm. per 100 cc., and there was a mild hyponatremia. Free acidity was absent in the gastric secretion and eight units were elicited by histamine stimulation. Cytological examination of the stomach contents failed to reveal neoplastic cells. A gastrointestinal series revealed a hypotonic and hypoperistaltic stomach with a rough defect in the antral region and inability of the barium to pass into the duodenum. The radiologist made a tentative diagnosis of gastric neoplasm. At operation, six days after admission, almost half of the stomach was found to be invaginated into the first portion of the duodenum, which was enormously lengthened. A Polya's partial gastrectomy was performed. The resected segment included a polypoid, sessile, irregular, brain-shaped mass that was elevated 3.5 cm. above the normal surrounding tissue. Histological examination revealed a giant hypertrophy of all the normal constituents of the gastric mucosa. The patient made an uneventful recovery.

SWEDEN

Lobectomy for Pulmonary Tuberculosis.—In *Nordisk medicin* for June 20, Dr. V. O. Björk gave an account of the 301 lobectomies he performed for pulmonary tuberculosis. He found advanced age no contraindication, and among his patients were five operated on after they were 60. While four of them tolerated the operation well, the fifth, aged 64, died two days after the operation with signs of coronary insufficiency. The indications for operation were cavitation in 85%, bronchial stenosis in 9%, bronchiectasis in 2%, tuberculous pneumonia in 2%, and tuberculous empyema with a bronchial fistula in 2%. A cure could be claimed in 85% on the strength of negative guinea pig and sputum tests. The 15% for whom a cure was not claimed consisted of patients in whom tubercle bacilli were still demonstrable. The resected portion of the lung having already been largely destroyed by tuberculosis, the loss of this portion by operation did not appreciably reduce the gas exchange or ventilation of the lung on the side operated on. There was, however, a significant diminution of the maximum ventilation capacity. In 283 patients, the resection was combined with a plastic operation, and there were only 18 patients in whom the lobectomy was independent of any simultaneous operation designed to reduce the capacity of the chest. Björk noted, however, that several of his patients with pulmonary tuberculosis had cavitation with the disease confined to one lobe. For such patients primary lobectomy can be performed without any supplementary plastic operation. These comparatively new cases are in marked contrast to older series in which tuberculosis was usually bilateral and most of the patients had previously undergone pneumothorax on one or both sides.

Surgical Treatment of Peptic Ulcer.—Dr. S. Richter (*Nordisk medicin*, June 20, 1957) has reviewed his experiences of the last 20 years during which he treated 2,765 patients with peptic ulcer. There was no evidence that patients subjected to gastric resection are peculiarly liable to contract pulmonary tuberculosis. Dr. S. Grettve reported on a series of 283 gastric resections. While he had no postoperative deaths among his 246 patients with chronic recurrent ulcer, he had two such deaths among the 27 patients with perforation of the ulcer. His follow-up examination showed that 70% of his patients were completely free of gastric symptoms, though several of them had some slight difficulty with their food suggestive of the dumping syndrome. This did not, however, impair their capacity for work. Grettve concluded that the Billroth 2 operation insures a low mortality and small risk of relapse.

Traffic Accidents.—Traffic accidents now cost Sweden 269 million krona yearly. Dr. Ivar Palmer (*Nordisk medicin*, Aug. 8, 1957) has reviewed the findings of the Northern Surgical Congress held in Stockholm last summer. It was pointed out but not statistically proved that the noise of motor traffic must to some extent be held responsible for traffic accidents by virtue of the irritation it causes. This factor has not been measured, and, if it is to be done, money must be spent on research. The noisy motor bike causes three times as many road accidents as the motor car, although cars outnumber motor bikes. Research is also needed into the influence of poisons such as gas fumes, carbon monoxide from the engine or a cigaret, and hypnotics, but not including alcohol, on road accidents. At present these potential offenders are neglected in favor of alcohol, the importance of which has been rated so highly that a blood concentration of only 0.05% is enough to convict a driver of careless driving. In practice this means that the physician likely to be called on to drive a car at any time must not even take a bottle of beer, which is enough to raise the concentration of alcohol to the above level. The part played by alcohol has hitherto caught the attention of the traffic authorities with almost monomaniacal interest. Drunkenness in traffic must be combated as effectively as possible, but one is tempted to ask if the campaign against it has not been overzealous.

Is Neglect of Antitetanic Serum Defensible?—A disciplinary case brought to the attention of the Swedish Doctors' Liability Committee has again raised doubts over the decision for the prophylactic administration of antitetanic serum as soon as a serious wound has been inflicted. The patient was a 7-year-old girl who fell on a splinter of glass which opened a 2-cm. wound on the flexor aspect of her right hand. The girl was promptly taken to a polyclinic, where her wound was treated with hydrogen peroxide and then sutured. She was told to return a week later, but when she did so the wound was found to be purulent. Sutures were removed and the wound opened so as to allow the escape of pus. A dressing was applied, and the faulty position of the hand was corrected by a splint. Antitetanic serum and toxoid were given, because stiffness of the neck, lower jaw, and right arm had been detected the day before. The girl died a few days later of tetanus. Her father appealed to the liability committee, whose experts gave a cautiously worded judgment which is published in *Svenska läkartidningen*, Aug. 16. To the complaint that serum had not been given sooner, it was answered that, as far as could be ascertained, there had been no error or neglect in the treatment given; but the comments of one of the experts on the case imply that washing with hydrogen peroxide does not by itself satisfy the rulings of the Swedish Surgeons' Association on the prevention of tetanus.

UNITED KINGDOM

Maternal Mortality.—An editorial in the *British Medical Journal* of Aug. 3 draws attention to certain defects which persist in spite of the march of progress. In 1928, 2,920 women died as a result of pregnancy or from causes directly associated with it. In three years, 1952 to 1954, there were 1,987 deaths under this same heading. The four leading causes of deaths were toxemia (22%), hemorrhage (17%), abortion (14%), and pulmonary embolus (13%). Sepsis accounted for only 3.8% of these deaths, and this remarkable decrease is the most outstanding factor in the reduction of maternal mortality. Twenty-five years ago sepsis was responsible for more than 33% of maternal deaths. Among the 316 "associated" deaths, heart disease was the most common cause, accounting for 121. There were 183 deaths after cesarean section and 49 due to complications of anesthesia.

Since eclampsia can be prevented by rigid prenatal supervision, it is discouraging to note that 110 mothers died from this disorder. The most glaring deficiency was in the quality of prenatal care. A number of these deaths were clearly due to lack of cooperation between physician, midwife, clinic, or hospital. Shortage of antenatal beds has been blamed for late admission of patients with severe preeclampsia, but this is not reasonable justification for a hospital sending "home to bed" a patient with albuminuria, edema, and blood pressure of 168/110 mm. Hg. Another patient whose blood pressure was 220/130 mm. Hg was allowed to return home. Again, when so much time is spent in teaching the importance of an early rise of blood pressure, it is hard to understand why a mother was not admitted to hospital when her systolic blood pressure was over 200 mm. Hg.

It is believed that half of the deaths from hemorrhage in antepartum cases and 90% in the postpartum group could have been prevented. Deaths from postpartum hemorrhage with retained placenta presented a higher proportion of avoidable factors than any other group. In many instances the "flying squad" was called too late, or the patient was removed to hospital without resuscitation or with the placenta undelivered. These squads should not be staffed by junior medical officers. The family physician or midwife needs expert help when calling for it, and an experienced obstetrician and anesthetist should always be members of the team. It was not always in the home that attendants did not appreciate the dangers of slow, continuous hemorrhage. Perhaps when ergonovine maleate is given routinely with the delivery of the baby, these tragedies, almost wholly preventable, will no longer appear in maternity reports. There were very few avoidable factors in deaths from pulmonary embolus, but, in cases of abortion, it was a different story. Many do not realize that it is most often the married woman with a family who succumbs to the complication of procured abortion; there were 85 such cases.

The report issued by the Ministry of Health recommends that there should be (1) better antenatal care, especially in early detection and early treatment of toxemia; (2) more prompt and more effective treatment of hemorrhage, especially through the use of "flying squads" for the emergencies of domiciliary midwifery; and (3) better selection of patients for specialist care at the hospital, especially women in the older age groups and higher parities. Time and again the report underlines the lack of teamwork between those responsible for the care of the expectant mother.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Obliterative Brachiocephalic Arteritis: Pulseless Disease of Takayasu. T. B. Gibbons and R. L. King. Circulation 15:845-849 (June) 1957 [New York].

The authors report a 42-year-old woman with obliterative brachiocephalic arteritis, a rare vascular disease. Except for a fractured clavicle in childhood, there was no history of trauma and no evidence of aortic aneurysm or dissection or syphilitic infection. The patient was admitted to the hospital for study of low blood pressure and claudication in the left leg, right arm, and jaw. She also had a feeling of weakness of the eyes "as if they would cross" followed by a sensation of slow gyrations in the head and partial loss of balance. Each spell lasted from 4 to 10 minutes and was followed by nausea. Ophthalmoscopic examination revealed slight glaucomatous cupping but no evidence of cataracts, corneal opacities, or vascular looping in the region of the optic disk. The axillary arteries were not pulsatile to palpation; both radial arteries were weakly palpable at times, but ulnar pulses were absent. The left popliteal and dorsalis pedis arteries and both posterior tibial vessels were nonpulsatile. Blood pressure was determined with great difficulty in the arms. With the patient supine the systolic pressure in both arms was estimated to be around 70 mm. Hg. With the patient sitting up or standing, an arterial pressure could not be detected in either arm. Blood pressure in the legs was 145/80 mm. Hg on the right and 90/80 mm. Hg on the left. The patient was given 10 mg. of prednisone orally every 6 hours. Bishydroxycoumarin (Dicumarol) was employed to maintain the prothrombin concentration between 10 and 20% of the control. The patient was discharged after 10 days to continue the same therapy at home. Six weeks later the patient reported a gradual subjective improvement, having been free of jaw and arm claudication since leaving the hospital. There was also an increased capacity for walking before the appearance of claudication in the left leg. She continued to have occasional transient blurring of vision. An angiocardiogram was performed, and the first portion of the innominate artery, the entire left subclavian artery, and the proximal segment of the left common carotid artery were not visualized. The right subclavian artery could be faintly traced at its junction with the right common carotid artery, but not distal to this point. The axillary arteries and the distal portions of the carotid arteries, including their bifurcations, were clearly seen and appeared normal.

The case of this patient did vary from the typical case of brachiocephalic arteritis in 3 respects: there was no objective evidence of organic damage to the eyes beyond glaucoma, the patient did not have carotid sinus syncopal attacks, and she apparently did have involvement of the left iliac artery, but all these variations have been described in patients with Takayasu's disease. At present the patient is being maintained on 15 mg. of prednisone per day and sufficient Dicumarol to provide a desired degree of hypoprothrombinemia. The therapeutic results obtained with these 2 drugs thus have been encouraging. Although the case of this patient is only the third of this disease to be reported in this country, 5 probable cases have been described under other diagnoses. In contrast, nearly 100 cases have been recognized in Japan and Europe.

Retrosternal Novocaine Anesthesia Therapy of Coronary Insufficiency. F. E. Ostapiuk. Terapevticheskiy Arkhiv 29:58-70 (No. 4) (April) 1957 (In Russian) [Moscow].

The method consists of passing a needle 15 to 18 cm. long into the jugular fossa and passing it downward behind the sternum until aortic pulsations are felt. From 60 to 80 cc. of 0.5% solution of novocaine is then injected into the anterior mediastinum. Three hundred twenty such injections were given to 59 patients, to 9 of these at the time of myocardial infarction and to 264 between anginal attacks. The injections were given to 7 patients once weekly and to the rest at intervals of 1, 2, 3, and 4 days. The number of injections given to an individual patient varied from 1 to 10. The result of the treatment in 32 patients was a complete cessation of the anginal attacks. In a group of 9 patients attacks became less frequent, and in a group of 5 patients the treatment proved ineffective. The authors conclude that novocaine anes-

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The place of publication of the periodicals appears in brackets preceding each abstract.

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thesia therapy is effective in coronary insufficiency. The anesthesia of the para-aortic and cardiac plexuses produces anesthesia of the pain conducting fibers and improves the coronary circulation by the dilating effect upon the coronary arteries. Extrasystoles, paroxysmal tachycardia, atrioventricular block, and block of the bundle of His do not constitute a contraindication to the above treatment. Blood pressure higher than 200/110 mm. Hg or low blood pressure (lower than 90/50 mm. Hg) constitutes a contraindication.

Prognostic Factors in Myocardial Infarction. G. E. Honey and S. C. Truelove. Lancet 1:1155-1161 (June 8) 1957 [London].

The records of all patients admitted with myocardial infarction to the Radcliffe Infirmary from 1940 to 1954 inclusive were analyzed together with those of a small number of patients in whom the disease developed while in hospital for other disorders. This first of 2 reports on 543 attacks of myocardial infarction is concerned with the prognosis in the acute attack (the 2 months after admission). One-third of the 195 deaths that occurred during these 2 months ensued on the first day. Thereafter the rate of dying fell off progressively. The presence of shock or hypotension or both when the patient arrived at hospital was associated with an increased risk of death within 48 hours of admission. Among patients who survived the first 48 hours, a different set of factors was associated with an increased risk of death during the rest of the acute attack. These were a history of cardiac asthma, evidence of cardiac failure (either left or right ventricular), cardiac arrhythmia (including multiple extrasystoles), gross cardiac enlargement, and diabetes mellitus. Factors which have been supposed to be associated with bad prognosis had no such association in the present series. These factors were a previous attack of myocardial infarction, previous angina of effort, previous breathlessness on exertion, and previous hypertension. Prognosis was likewise unaffected whether the onset was with the patient at rest or during exertion. Anticoagulant therapy was first used in this series of patients in 1948 and was in extensive use by 1952. The over-all effect of anticoagulant therapy on the death rate has not been very great, and the improvement can be accounted for by the almost complete abolition of deaths from pulmonary embolism.

Prognostic Factors in Myocardial Infarction. G. E. Honey and S. C. Truelove. Lancet 1:1209-1212 (June 15) 1957 [London].

This second report on prognostic factors in myocardial infarction reviews the long-term prognosis of the 348 survivors of the acute attack, which is defined as lasting 2 months from admission. About 1 in 7 of the survivors died during the remaining 10 months of the first year, and this rate was constant throughout the whole period covered by the study. In the second year a further 10% died. Thereafter, about 5% died each year. Bad prognostic factors, which can be recognized early in the acute attack, were evidence of cardiac failure (either left ventricular or congestive and not necessarily severe); cardiac arrhythmia including multiple extrasystoles; gross cardiac enlargement; and (though less important than the foregoing) a previous attack of myocardial infarction. Patients who displayed one or more of these features constituted a bad-risk group. They had 4 times the chance of dying in the remainder of the first year as did the patients with none of them. Over the course of 5 years, their chance of dying was double that of the *good-risk group. Age was of negligible consequence* in the long-term prognosis compared with whether the patient fell into the good-risk or the bad-risk group.

Among the good-risk group, the main cause of death within 5 years of the acute attack was recurrent infarction. The incidence of this was high among the patients under 60 and was the sole cause for their expectation of life being much worse than that of a sample of the same age and sex of the general population. By contrast, the patients of the good-risk group over 60 years had a low rate of recurrent infarction. Their expectation of life was the same as that of other people of their age and sex. Among the bad-risk group, recurrent infarction was common in both main age groups. In addition, cardiac failure not associated with another infarction was a potent cause of death.

Primary Cardiac Tumor (Sarcoma): Case with Unusual Clinical Course. V. Faber, E. Søndergaard and A. Bach. Ugesk. læger 119:696-698 (May 30) 1957 (In Danish) [Copenhagen].

Tumors of the heart are rarely included in diagnostic considerations, and, according to Engle and Glenn, the diagnosis of tumor of the heart has been made before death in only 14 cases. In the case of a primary sarcoma in the right atrium in a man aged 24 the multiple diffuse infiltrations in both lungs seen on roentgen examination could be interpreted as metastases, but neither heart auscultation nor electrocardiogram suggested primary localization in the heart. The clinical course was dominated by increasing hemorrhagic expectoration and anemia. There was no dyspnea or cyanosis. Autopsy disclosed the site of the primary tumor, which on microscopic examination was found to be a sarcoma. The necrotic hemorrhagic metastases in the liver were of the same character as the tumor tissue in the heart, and the metastases to the lungs showed mainly the same structure as those in the liver, but with more abundant cytoplasm.

SURGERY

The Beck Operation for Coronary Artery Disease. C. S. Beck and B. L. Brofman. Minnesota Med. 40:462-466 (July) 1957 [St. Paul].

Two things happen when a coronary artery is narrowed or occluded, namely, the production of electrical currents and the death of muscle. Electrical currents are produced in response to an increased oxygen differential, due to contact of poorly oxygenated muscle with well-oxygenated muscle, and the death of muscle occurs as a result of an inadequate blood supply. An ischemic area of muscle is capable of "triggering" a response in that it is acutely sensitive to slight increases or decreases in the blood supply, which reduce and increase its destructive power respectively. The heart is exceedingly vulnerable to small alterations in blood supply because of the precise segmental arrangement of the cardiac vascular network, where each coronary artery and each branch of a major coronary artery supplies a discrete segment of muscle. Some persons (9%) have variable connections between coronary arteries or their branches and are, thus, to a greater extent less vulnerable to coronary occlusion because of the existence of this collateral network. The Beck operation is a simple procedure consisting of 4 steps: passage of a ligature around and constriction of the coronary sinus down to a lumen of 3 mm.; abrasion of the lining of the parietal pericardium and epicardial surface of the heart; application of 0.3 Gm. of coarsely ground asbestos to the surface of the heart; and bringing of the mediastinal fat into contact with the heart to act as a graft. This procedure accomplishes several favorable ends: greater extraction of oxygen from the venous blood, a reduced oxygen differential, and the production of intercoronary channels. The only untoward result of this procedure is an increased capillary pressure leading to a reduced total coronary inflow. Contraindications for operation include signs of congestive heart failure (dyspnea at rest, rales, and peripheral edema), cardiac enlargement, and progressive symptomatology. Of 100 patients with a follow-up of 6 months to 5 years, 88% were improved and 90% were better able to work. In this series there were 100 consecutive operations with zero mortality.

Medical Aspects of the Surgical Treatment of Coronary Heart Disease. B. L. Brofman. Minnesota Med. 40:467-470 (July) 1957 [St. Paul].

Surgical intervention is indicated in patients who present clinical evidence that coronary artery disease has compromised the arterial blood supply. Contraindications are acute myocardial infarction or even a suspicion of an impending infarction, cardiac enlargement and evidence of congestive heart failure, and severe hypertension or any other associated disease that per se significantly limits life expectancy. Many of the patients in this series (75%) had suffered at least one clinically proved myocardial infarction, 2 or more infarctions having occurred in 20% and angina pectoris ranging in severity from mild to complete status anginosus in 95%. Patients with symptoms of longer duration (exceeding 3 years) tolerated the operation much better than those with symptoms of shorter duration. Operation is temporarily contraindicated in patients exhibiting anxiety and apprehension because of the specific deleterious effects (greater operative risk presumably in association with a lowered fibrillatory threshold) peculiar to patients so affected. The total mortality in a group of 225 patients was only 5% (11). A more recent series of 100 consecutive operations (30% salvage cases) resulted in only one fatality. Generally, the immediate postoperative course is uneventful, long-term follow-up revealing that 15 of the first 100 patients having severe "attacks" required hospitalization (3 instances of transmural myocardial infarction and 12 patients with one or more bouts of severe precordial pain), from which all recovered with no worsening of the symptoms and with the majority returning to work in 1 to 4 weeks. Complication such as severe narcotics addiction, psychoses, and cerebrovascular accident were disclosed in some of the few patients (10%) in whom long-term follow-up revealed no improvement. It is of interest that 3 patients having evidence of congestive heart failure prior to operation were better compensated postoperatively. Several patients obtained remission of, in addition to the common symptoms of coronary heart disease, some unusual manifestations, namely, premature ventricular beats (5%), reduction or absence of arterial pulses particularly in the left arm, sensory changes in the hands, and the shoulder-hand syndrome. A period of symptomatic improvement was abruptly terminated by overwhelming occlusion and death in half the patients who died 6 months to 5 years after operation. This result is not to be precluded by surgery, as the technique is symptomatic rather than prophylactic in nature.

Temporary Extracorporeal Circulation in the Surgical Treatment of Cardiac and Aortic Disease: Report of 98 Cases. D. A. Cooley, B. A. Belmonta, M. E. DeBakey and J. R. Latson. Ann. Surg. 145: 899-914 (June) 1957 [Philadelphia].

Temporary extracorporeal circulation has been developed for clinical application in surgical treatment of cardiovascular diseases. This report is concerned with the use of temporary extracorporeal circulation in 98 cases of cardiovascular disease. Temporary controlled extracorporeal circulation of 2 types was used, one being total cardiopulmonary bypass and the other simple unilateral bypass shunting blood from venous to venous or arterial to arterial regions. The method employed in the individual case depended upon the location and nature of the lesion. Total cardiopulmonary bypass was used in 88 and unilateral bypass in 10 patients. The oxygenator system was a bubble diffusion type, which produced consistently good oxygenation without serious hematological changes. Ventricular septal defects were repaired in 45 patients. Decrease in pulmonary pressure occurred at operation in all patients, and clinical improvement resulted in the 38 survivors.

Repair of atrial septal defects was usually well tolerated under cardiopulmonary bypass and is considered to be the method of choice for these defects. Among 12 patients operated upon 10 recovered and are apparently cured. Complete correction of tetralogy of Fallot was attempted in 7 patients, with 4 survivors, and in 4 patients with isolated pulmonary stenosis there were no deaths. Unilateral bypass was used successfully in 1 patient with combined infundibular and pulmonary valvular stenosis. For aneurysms of the descending thoracic aorta bypass around the lesion proved effective in preventing ischemic damage to the spinal cord during temporary aortic occlusion. In an addendum the authors state that since the completion of this report they have used total cardiopulmonary bypass in 52 patients and unilateral aortic bypass in 12. A stainless steel oxygenator has recently been used which is superior in many respects to the disposable plastic oxygenator.

Diagnosis and Treatment of Intracavitary Myxomas of the Heart. H. T. Bahnson, F. C. Spencer and E. C. Andrus. Ann. Surg. 145:915-926 (June) 1957 [Philadelphia].

The intracavitary myxoma is now accessible by surgery within the open heart. The authors present their experiences with 3 patients in whom they observed an intracavitary myxoma at operation. The first patient, a 53-year-old woman, had dyspnea and evidence of cardiac inflow stasis of 6½ years' duration. She had become refractory to remedies for cardiac failure. A short, soft systolic and a low-pitched rumbling diastolic murmur were heard adjacent to the sternum on the left. A diagnosis of intracavitary tumor of the right atrium was made after cardiac catheterization and confirmed by angiocardiography. The tumor was incompletely removed. Residual tumor, gastric dilatation, and electrolyte disturbances all probably contributed to death on the 24th postoperative day. The second patient, a 44-year-old woman with a 4½-year history of refractory right heart failure and intractable ascites, had an inconstant murmur suggesting mitral stenosis. Exploratory operation for the suspected stenosis revealed a tumor which was dislodged during manipulation and caused death from blockage of the left ventricle and thoracic aorta. The tumor arose from the atrial septum.

The third patient, a 57-year-old woman, was known to have had a cardiac murmur for 30 years and symptoms of fatigue, weakness, dyspnea, orthopnea, and hemoptysis for 20 years. Her condition had become refractory to treatment. A myxoma was unexpectedly encountered during exploration for mitral stenosis and later successfully removed during a cardiopulmonary bypass. To these cases treated surgically are added 6 additional cases undiagnosed before death and obtained from autopsy files. These cases are examples of the manners in which a myxoma may cause disability, namely, by cavitary obliteration, occlusion of the valve orifice, or arterial embolism. The tumor can be readily removed provided one is able to work within the open heart. For removal of a right atrial tumor, caval occlusion with the patient under hypothermia is suggested as the preferred method. The use of a pump oxygenator is advocated for a tumor of the left atrium. When a tumor is encountered during exploration for mitral stenosis, removal should be delayed until preparations for open cardiac surgery can be made.

NEUROLOGY & PSYCHIATRY

Congenital Absence of the Corpus Callosum: Report of a Case and Review of the Literature. U. T. Slager, A. B. Kelly and J. A. Wagner. New England J. Med. 256:1171-1175 (June 20) 1957 [Boston].

Of the 170 cases of congenital absence of the corpus callosum that have been reported, only 23, all diagnosed at autopsy, were asymptomatic. Some authors believe in the existence of a definite syndrome of absence of the corpus callosum. Others, although they do not recognize a syndrome, maintain that its absence or destruction results in neurological and psychiatric abnormalities. A third group proposes that no detectable deficiency results from absence or destruction of the corpus callosum. In support of this thesis, the 24th asymptomatic case of congenital absence of the corpus callosum, and the 16th case of complete absence in an asymptomatic adult, is presented. The patient was a 76-year-old man, who died 3 days after admission to hospital. Autopsy disclosed a recurrence of adenocarcinoma at the gastrojejunal anastomotic site, with metastases to the regional lymph nodes, colon, peritoneum, liver, pancreas, and common bile duct, producing compression of the common bile duct, with resulting hydrops of the gallbladder ending in rupture and bile peritonitis. Bronchopneumonia and an old posterior myocardial infarct were also found. Microscopic sections of the cerebral cortex, basal ganglions, pons, medulla, and cerebellum stained with hematoxylin and eosin revealed a normal cytoarchitecture, except for the complete absence of the corpus callosum. Moderate atherosclerotic changes were present. The function of the corpus callosum is apparently such that an adult can exist without this structure, living a normal life with normal intelligence and motor performance. The abnormalities such as idiocy, mental retardation, epilepsy, apraxia, and inability to concentrate, which are frequently reported, especially in children, are most probably due to anomalies usually associated with congenital absence of the corpus callosum.

GYNECOLOGY & OBSTETRICS

Feminizing Mesenchymomas (Granulosa-Cell and Theca-Cell Tumors) with Associated Endometrial Carcinoma: Review of the Literature and a Study of the Material of the Ovarian Tumor Registry. J. W. Greene Jr. Am. J. Obst. & Gynec. 74:31-41 (July) 1957 [St. Louis].

The author reports a 33-year-old woman who was admitted to the hospital of the University of Pennsylvania with the complaint of vomiting and gaseous distention of 11 days' duration. Menorrhagia had occurred during the last year, but no metrorrhagia. Abundant curettings grossly resembling carcinoma were obtained by dilatation and curettage. At laparotomy, the peritoneum, omentum, and intestine were found to be studded with tumor nodules. The ovaries were replaced by large masses of fungating friable tissue. Biopsies were taken from the ovaries and the omentum. The curettings showed endometrial glands composed of stratified cells with loss of cell polarity. In many areas, all semblance of basement membrane was lost and there was free invasion of the surrounding stroma by epithelial cells with numerous mitotic figures. The biopsies of the omentum and ovary showed cells of a microfolliculoid appearance with occasional rosette-like groupings about Call-Exner bodies, typical of granulosa-cell carcinoma. A diagnosis was made of a granulosa-cell carcinoma of the ovary with metastases to peritoneum, omentum and intestine, and of associated endometrial carcinoma.

The simultaneous occurrence of a feminizing mesenchymoma and carcinoma of the endometrium suggests the possible carcinogenic property of estrogens. This association has not been reported on previously in a woman aged less than 40 years in the English literature. One case was reported in the South American literature by Giordini in a 34-year-old woman with bilateral thecomas and carcinoma of the endometrium. A review of the slides and clinical histories of feminizing mesenchymomas contained in the ovarian tumor registry of the American gynecological society in which the endometrium was available for study revealed only 1 case of a feminizing mesenchymoma associated with carcinoma of the endometrium in a woman in the reproductive age. The author's case brings the total number of instances of these combined tumors to 132, of which 3 were in women aged less than 40 years.

The Role of Exfoliative Cytology in the Diagnosis of Carcinoma of the Cervix Uteri. E. H. Dale, O. A. Brines, G. S. Wilson and H. M. Nelson. Am. J. Obst. & Gynec. 74:25-30 (July) 1957 [St. Louis].

Of 15,832 presumably asymptomatic women from whom routine Papanicolaou smears were obtained in the course of 4½ years at a cancer detection center, a histopathological diagnosis of cancer of the uterine cervix was made in 151 (0.95%). Biopsies were performed in 140 women with positive smears; 123 (87.8%) of these confirmed the positive smear diagnosis. Fifty-one biopsies were performed in 77 women with suggestive smears, 27 (52.9%) of which were positive. Of the 151 women with cancer of the uterine cervix, 147 had squamous cell carcinoma; the tumor was invasive in 95 and apparently preinvasive in 39. The status of the remaining 13 patients was uncertain. Nearly 25% of the invasive and about 75% of the preinvasive carcinomas of the cervix were not recognized on vaginal inspection; consequently, history and physical examination only are not reliable methods for the diagnosis of cervical cancer.

Of the 151 women with histologically proved cancer of the uterine cervix, 52 (34.4%) were less than 40 years old. The cancer was definitely invasive in 24 of the 52 women. Thus in about 50% of the patients aged less than 40 years, the cancer had already progressed beyond the intraepithelial stage. This disease, therefore, has a higher incidence among the younger age group than has been generally thought. Routine Papanicolaou smears have been a most effective diagnostic aid in cancer detection and are credited with primary detection of 42.8% of all cancers of the cervix at Yates Memorial Clinic, staffed by the Wayne State University College of Medicine, and operated as a cancer detection center.

Facts Pertinent to the Etiology of Eclamptogenic Toxemia: A Summation of Previous Observations (1930-1955). R. A. Bartholomew, E. D. Colvin, W. H. Grimes Jr. and others. Am. J. Obst. & Gynec. 74:64-84 (July) 1957 [St. Louis].

An extensive review of the literature on the causation of eclamptogenic toxemia revealed certain significant anatomic, physiological, and pathological data on which a theory of the genesis of this disease has been based. There is a specific placental pathology in the form of acute and subacute placental infarction, best observed in formalin-fixed placentas, which is pathognomonic for preeclampsia, eclampsia, and abruptio placentae. This fact, first discovered by Young, is pertinent to the causation of the disease. Areas of placental necrosis in contact with maternal intervillous circulation present possibilities of dissemination of products of placental autolysis, which may be highly toxic to the mother. Placental infarction of the subacute or acute types is logically the cause and not the effect of toxemia of pregnancy. The paths and interrelationship of the fetal and maternal components of the placental circulation dictate this conclusion.

The anatomic basis of placental infarction is found in the presence of smooth-muscle sphincters in the placental veins, first discovered by Spanner. The trigger which excites spasm of few or many of the venous sphincters is logically oxytocin, which through changes in hormone balance in the latter part of pregnancy (lowered progesterone and presence of free estrogen) is apparently released from the inhibition exerted by its hormonal antagonists, progesterone and pitocinase. Increase in desoxycorticosteroids late in pregnancy, aided by salt, sensitizes the smooth muscle of vessel walls and probably that of placental vein sphincters to increased reactivity. Spasm of the venous sphincters obstructs exit of fetal blood from the corresponding placental units, causing distention of villous capillaries, enlargement of villi, diminution or obliteration of the intervillous spaces and circulation, resulting in anoxic necrosis of chorionic epithelium, villous stroma, and capillary endothelium.

Thromboplastin, abundant in placental tissue, is apparently the first product of chorionic necrosis, which, if infarction is extensive, causes abruptio by subplacental clot formation and occasionally afibrinogenemia with hemorrhagic tendency. It is apparent that there is only one true toxemia of pregnancy—that due to placental infarction and necrosis. It comprises abruptio placentae, eclampsia, and its precursor, preeclampsia. Other conditions presently included in the accepted classification of toxemias of pregnancy constitute predisposing causes rather than types of toxemia. It is hoped that biochemical study of normal and toxic placentas and blood, now in process, may serve to identify the nature and effects of other degradation products of placental necrosis, which are probably more concerned with preeclampsia and eclampsia.

PEDIATRICS

The Nephrotic Syndrome in Early Infancy: A Report of Three Cases. H. McC. Giles, R. C. B. Pugh, E. M. Darmady and others. Arch. Dis. Childhood 32:167-180 (June) 1957 [London].

Renal changes were manifest in 3 newborn infants. Two of them were siblings, and both sets of parents were first cousins. Each infant showed a similar abnormality of the renal tubules on microdissection, doubly refractile crystalline material in alcohol-fixed tissues, and predominant lesions in the renal tubules with probably secondary glomerular damage. The severity of the histological changes was correlated with the presumptive duration of the illness. The findings suggested that all 3 infants had the same genetically determined primary disorder. A review of previously reported cases of the nephrotic syndrome in newborn infants shows that the most common feature, apart from the essential clinical and biochemical similarities, was an invariably fatal outcome, usually in the first 6 months of life. Parental consanguinity has not previously been reported. The inherited defect in the 3 infants may be manifested by an anomaly of the renal tubules and by the deposition of anisotropic crystalline material in certain tissues.

Vaccinia Gangrenosa and Agammaglobulinaemia. K. Somers. Arch. Dis. Childhood 32:220-224 (June) 1957 [London].

A 6-month-old male infant with vaccinia gangrenosa is described. The progressive necrotizing vaccinal reaction, failure to heal, the development of gangrene, and appearance of fresh lesions at various sites were distinguishing features of vaccinia gangrenosa. Plasma protein studies revealed agammaglobulinemia. Virological studies confirmed the presence of vaccinia; there was a secondary micrococcic (staphylococcic) infection. The patient had no humoral defenses against the virus, perhaps because of gamma globulin deficiency. He was, thus, a perfect medium for the cultivation of vaccinia virus, which produced gross cutaneous and visceral damage. The baby was given various antibiotics and intramuscular injections of vaccinia gamma globulin, but without result. The disease, at autopsy, was characterized by lymphoid atrophy, absence of healing, and poor inflammatory response. Patients with agammaglobulinemia should not be vaccinated. Those with generalized vaccinal reactions should be examined for gamma globulin.

Does Celiac Disease Really Exist? With Reference to 16 Personal Cases. M. Jeune, R. Carron, M. Flattot and G. Lafond. Semaine hôp. Paris 33:2459-2475 (June 22) 1957 (In French) [Paris].

The existence of celiac disease is still disputed by some authorities in spite of the many works that have recently been published on the subject and in spite of the fact that gliadin has been shown to act as a precipitating agent in causing it. The authors, however, believe that such a disease unquestionably does exist, and they cite the cases of 16 patients seen by them in the last 4 years. A valid diagnosis of celiac disease was established in each case. The disease, which is characterized by the chronic elimination of steatorrheic stools in excessive quantities, a distended abdomen, and arrested growth in weight and height, is due primarily to intolerance for certain constituents of certain flours, can be explained either mechanically (increased physiological cleansing processes in the presence of mucosal sensitivity), or allergically (mild sensitization).

In the asthma of millers degenerative processes, produced mechanically by dust, generally predominate; these in turn bring on chronic bronchitis, asthma, or emphysema. Cutaneous tests produce no reaction, and rhinitis is absent. Allergic factors, in addition to the mechanical action of dust, seem to play a causal role in the asthmatic bronchitis of a small number of patients with millers' asthma. The cutaneous tests may be positive in these patients. The literature reports cases of purely allergic asthma in millers, being due to flour, bran, or extraneous admixtures, but the author did not observe cases of this type. He admits, however, that he made no cutaneous tests with bran; but the 8 millers gave no indications that their disorder involved processes analogous to those that play a part in the allergic asthma of bakers. He believes that his studies demonstrate that the unitarian concept of the allergic origin of bakers' asthma and of millers' asthma applies only under certain conditions, if at all. It must be emphasized, however, that occupational factors play a part in the forms of bakers' and of millers' asthma under consideration here. Although the cause may differ in the asthma of bakers and millers, both disorders are definitely of occupational origin.

Vitamin B_{12} in Acute Subdeltoid Bursitis. I. S. Klemes. Indust. Med. 26:290-292 (June) 1957 [Chicago].

In 1953, the author had reported on 6 patients with subdeltoid bursitis in whom large doses of vitamin B_{12} (1 mg. per dose) produced rapid relief. Roentgen examination revealed absorption of the calcium deposits. Since then, 40 additional patients have been treated successfully, sufficient to indicate that such use of vitamin B_{12} is an effective therapy in acute subdeltoid bursitis. This newer material is presented. The simplicity of administration, the virtual absence of side-effects, and the results obtained merit further clinical trial and controlled study.

Breathless Coal Workers as Seen at the Golden Clinic. J. E. Martin Jr. A. M. A. Arch. Indust. Health 15:494-498 (June) 1957 [Chicago].

Physical examinations, roentgenograms of the chest, and respiratory function studies made in 207 soft-coal workers who came from northeastern West Virginia, southwestern Pennsylvania, and western Maryland and were admitted to the Golden Clinic in Elkins, W. Va., revealed a disease identical with or very similar to coal workers' pneumoconiosis as described by British investigators. The classification of the pneumonoconiosis research unit of the Medical Research Council of England could be readily applied to the roentgenograms of the chest obtained from the American soft-coal miners. These miners were treated for their respiratory difficulties with intermittent positive-pressure breathing combined with administration of nebulized isoproterenol (Isuprel) hydrochloride over a period of about 20 minutes. Eight drops (0.5 cc.) of a 1:200 solution of the drug mixed with 8 drops of water were nebulized. Two to 4 or more of such combined treatments were given daily.

Twenty of the 207 patients showed a decrease in maximal breathing capacity (expressed as per cent of pretreatment maximal breathing capacity, per cent of estimated normal) and the remaining 187 showed increases in maximal breathing capacity from 1 to 80% or more. Ninety-four (45%) showed significant increases of more than 30% in maximal breathing capacity. Cyanosis disappeared and dyspnea, wheezing, and cough lessened. The character and amount of sputum changed. Appetite improved. The patients often gained weight during their hospitalization. Improvement lasted for a few days to many months. Usually, symptoms returned or were markedly accentuated after an acute respiratory infection. Side-reactions to this type of treatment were few. Some patients complained of increased nervousness and palpitation, but these complaints were almost always prevented by nebulizing the isoproterenol at a slower rate. Diffuse chest pain, which occurred in the early days of the treatment, almost always disappeared with continued treatment. It appears that intermittent positive-pressure breathing with isoproterenol is a safe and effective means of therapy in chronic respiratory difficulties.

THERAPEUTICS

Cortisone and Syphilis: Results of Preliminary Corticotherapy in Penicillin Treatment of 120 Patients with Syphilis. P. de Graciansky and C. Grupper. Rev. Franç. études clin. et biol. 2:579-594 (June) 1957 (In French) [Paris].

Since 1951, the authors employed the rapid therapy of syphilis with massive doses of penicillin. They investigated systematically what aid corticotherapy in the form of cortisone, hydrocortisone, or corticotropin could provide in the various problems involved in this type of treatment. The 120 patients treated over a period of 5 years included patients with the various forms and stages of syphilis. At first the authors employed cortisone either by intramuscular injection or by mouth for 5 or 8 or even 30 days before the onset of penicillin therapy. Later, in 101 of the 120 patients, hydrocortisone was used. Infusion of corticotropin was tried in 2 patients, but this treatment was discontinued, because similar results could be achieved with the more simple forms of administration. Local corticotherapy was used in interstitial keratitis (instillation or subconjunctival injection) and in arthropathic tabes (intra-articular injection).

Preliminary cortisone therapy prevented or diminished in most patients the clinical signs of Herxheimer's reaction, particularly the fever response, in the early as well as in late forms of syphilis. Cortisone therapy also modified the clinical manifestations of syphilis. Variable improvements were noted in the primary lesion, in the secondary syphilides, in the gummas of the skin and of the mucous membranes in tertiary syphilis, in some subjective symptoms of neurosyphilis, and in interstitial keratitis. Cortisone therapy significantly reduced the biological signs of the syphilitic process: the Treponema organisms either disappeared or declined in number; there was a fall in the concentration of reagin in primary and secondary syphilis and in tertiary syphilis accompanied by clinical lesions, and abnormalities of the cerebrospinal process subsided. By contrast, in the purely serologic specificities there was no modification in the reagin concentration when it was low, as for instance in the so-called irreducible Wassermann reaction. Cortisone therapy did not diminish the sensitivity of the Treponema organisms to penicillin. nor was the usual course of syphilis after penicillin therapy altered by the preliminary cortisone therapy. Cortisone is a useful adjuvant in certain tabetic manifestations (lightening pains and gastric crises) and in interstitial keratitis. Cortisone increases the tolerance to penicillin in allergic subjects, in pregnant women, and in patients with syphilitic aortitis and with neurological syphilis.

Therapy in Collapse Due to Meningococcus Infection. J. E. Cassidy. Ann. Int. Med. 46:1099-1104 (June) 1957 [Lancaster, Pa.].

Of 63 patients with acute meningococcic infection who were given antibacterial therapy with sulfadiazine and crystalline penicillin G combined with the administration of such agents as desoxycorticosterone acetate, cortisone, corticotropin, norepinephrine, epinephrine in oil, plasma albumin, and nikethamide (Coramine), 3 progressed from mild toxemia to severe shock; of these, 1 died as a direct result of collapse, with adrenal hemorrhage, and another died of massive gastrointestinal bleeding, with associated adrenal hemorrhage observed at autopsy.

The danger of acute collapse exists in every acute meningococcic infection. Successful treatment requires immediate institution of adequate antibacterial therapy, the most satisfactory being a combination of sulfonamide and penicillin by available routes. with anticipation of adrenocortical failure and overwhelming toxemia by immediate administration of hydrocortisone intravenously at the rate of 300 mg. per 24 hours to all patients with meningococcic meningitis and/or meningococcemia. Collapse did not occur in 18 patients who were treated in this manner after admission to hospital. With return of the temperature toward normal, cessation in formation of cutaneous lesions, return of consciousness, and stabilization of blood pressure, cortisone by oral or intramuscular route was substituted. The dose was then tapered gradually to prevent "rebound" phenomena and to exclude the possibility that exogenous steroid had masked significant adrenocortical destruction. Levarterenol therapy of patients in collapse (if it occurs before specific therapy has succeeded) has proved life-saving. Three additional patients admitted in collapse were saved in this way.

Hydrocortisone may be more desirable than cortisone because of its more direct metabolic effect. The essential step is to produce a level of circulating hormone so rapidly that it is available in event of any adrenocortical damage. In addition to this, the anti-inflammatory or antitoxic effect of this substance is also important in reducing the fatal potentialities of the disease. Once collapse has occurred. steroid-antibiotic therapy alone may be inadequate. Here the pressor amines find specific usefulness. With these. the patient admitted to treatment in shock may be sustained long enough to give the former specific drugs an adequate opportunity. The combination of levarterenol and steroids seems to be synergistic in reversing collapse.

Butazolidine Treatment in Thrombophlebitis. H. Høst. Tidsskr. norske lægefor. 77:423-424 (May 15) 1957 (In Norwegian) [Oslo].

In department 8, Ullevål Hospital, 25 patients with thrombophlebitis were treated with Butazolidine. The response was good in 14 of the 17 cases of superficial thrombophlebitis. The impression is that in several of the 8 cases of deep thrombophlebitis the pain decreased as a result of the treatment. The average daily oral dose was 400-600 mg. for from 3 to 7 days. From 1 to 3 injections of 600 mg. were given intramuscularly at 2-or-3 day intervals. In some cases an intramuscular injection of 600 mg. was given the first day, followed by peroral treatment for a couple of days. The average duration of treatment was 5 days. Exanthem, which occurred in 2 patients, disappeared after 3 or 4 days. No other complications were observed. In superficial thrombophlebitis Butazolidine must be given for only a few days and under close supervision. Tendency to edema, ulcer, and allergic reactions are regarded as absolute contraindications.

BOOK REVIEWS

Clinical Cardiopulmonary Physiology. Sponsored by American College of Chest Physicians. Editorial Board: Burgess L. Gordon, M.D., and others. Cloth. $15.75. Pp. 759, with 248 illustrations. Grune and Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1957.

This monograph was planned to present normal cardiopulmonary mechanisms and their disturbances in diseases of the chest. The first chapters deal with normal physiology and are followed by chapters covering methods of examination and testing of cardiopulmonary functions. Succeeding chapters discuss the clinical physiology of impairment of the mechanics of respiration, obstructive phenomena of the respiratory tract, and mixing and dilution problems of the alveolar membrane, with adequate consideration of common and less common pulmonary diseases. The last chapters are devoted to the pathophysiology of cardiovascular diseases of the chest and include considerations of cor pulmonale, pulmonary edema, acquired valvular heart disease, congestive heart failure, congenital malformations of the heart, and impairment of the pulmonary circulation. While the emphasis throughout is on the physiology and pathophysiology of cardiopulmonary disease, etiology, pathogenesis, treatment, and prognosis are capably discussed.

The editorial committee of the College of Chest Physicians has succeeded in its aim of integrating basic data with the medical history and the physical examination and of combining the thinking of laboratory and bedside investigators of cardiopulmonary physiology and pathophysiology. As may be expected from multiple authorship, there is some unevenness in the quality of presentation. Thus, some parts of the chapter on the mechanics of breathing are difficult to follow and, contrariwise, the chapter on cor pulmonale is exceptionally lucid. There are a few errors. Hydrogen ion concentration and pH are confused in the discussion of respiratory acidosis on pages 10 and 11; hemoptysis is a sign rather than a symptom (page 61); the dosage but not the name of an antibiotic is given on page 458; and figures 13 to 18 on pages 604 to 608 follow the corresponding text by several pages. Occasional typographical errors were also noted. The monograph is recommended to physicians specializing in medicine and/or surgery of the chest and to interested general practitioners, internists, and general surgeons.

Fundamental Marriage Counseling: A Catholic Viewpoint. By John R. Cavanagh, M.D. Special chapter by Alphonse H. Clemens, Ph.D., and others. Cloth. $8. Pp. 598, with illustrations. Bruce Publishing Company, 400 N. Broadway, Milwaukee 1, 1957.

This learned volume presents the substance of the thinking of four physicians, a judge in the United States District Court in the District of Columbia, several Catholic theologians and chaplains, a sociologist, and others. There is an extensive glossary and list of references. There is no mincing of words or phrases even when the discussion seems to be non-Catholic or against prevailing thought. The facts are set down scientifically and are taken from authoritative sources. The entire text is well documented. A few diagrams and tables are included to clarify the text. The chapter on heredity is of special interest. Heredity of acquired characters is denied, and the information on germ cells and body cells is up to date, accurate, and complete, thus providing a sort of refresher course for those who are not conversant with the latest concepts. Five sections are devoted to such matters as the biological aspects of marriage, its sexual aspects, fertility and marriage, and social and religious aspects of marriage. Concerning artificial insemination, it is emphasized that this subject is fraught with dangers and limitations. Contraception is fully discussed and disallowed, but the rhythm method may be permitted under special circumstances as regards the health of parents and socioeconomic conditions. In each case the moral law is paramount, and wise counsel must be obtained from the physician, priest, or prelate. Counseling in marriage should begin with the engaged couple seen separately and together. Nothing can be hidden; each party must know the exact mental and physical status of the other. After marriage, in the first months, the counselor may be called on to straighten out difficulties and dangers and thus make the marriage work. Such a counselor must be learned in civil and moral law and in science, medicine, sociology, and economics. This seems too much to ask, but if one is really in earnest and wishes to give the best possible advice to inquirers, he would do well to study this volume.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

RADIATION EXPOSURE DURING DENTAL EXAMINATION

To the Editor:—*Recently increasing concern has been shown regarding the hazards implied in the use of diagnostic as well as therapeutic x-rays. What is an opinion as to the x-ray dosage to which routine dental films expose the patient in the average office, and what significance, if any, is there to the repetition of these dosages at nearly every subsequent visit to the dentist (ordinarily recommended to be twice a year) over the average lifetime? Also, are there any figures as to the ratio, in these exposures, between the dose received by the head and neck and the dose received by the gonads in the two sexes? Would the latter dose be considered significant from a genetic standpoint?*

Alfred B. Mason, M.D., Concord, Calif.

Answer.—The amount of radiation received by the patient during a routine dental roentgenographic examination depends on a number of factors. The type of equipment, the speed of the film, the technique employed, and, for certain considerations, the physical size of the patient determine the amount of radiation necessary to obtain a satisfactory roentgenogram. Depending on these variables, the radiation may vary from the high figure of 315 r per 70 seconds for full-mouth examination as cited by Nolan and Patterson (*Radiology* 61:625, 1953) to as low as 0.24 r per two-second exposure as reported by Yale and Goodman (*J. Am. Dent. A.* 54:354, 1957). A reduction to one-thirtieth of the unfiltered dose was attained by interposing 0.375 mm. of copper and 0.5 mm. of aluminum in the primary beam of the conventional dental x-ray machine without affecting the excellence of the roentgenograms. Such use of proper filtration and other means of dose reduction are rapidly becoming standard practice in dental radiography.

A conventional dental roentgenographic examination consists of 14 films. The exposure to the gonads of the patient who receives one such examination annually from age 10 to age 30 would be approximately 0.3 r for the male and about 0.05 r for the female. The natural background radiation to which everyone is exposed is about 4 to 5 r for a 30-year period. All radiation is significant from a genetic standpoint. The amount of gonadal radiation received incidental to dental radiography is but a fraction of the natural background radiation, however, and would appear to be relatively insignificant.

DETECTION OF BREAST CANCER

To the Editor:—*Is information available concerning the chemical product heptaldehyde for specific use in detection of cancer of the breast?*

L. F. Valentine, M.D., Santa Monica, Calif,

Answer.—Work is currently being done on temperature changes of the skin in cases of cancer of the breast (Lawson and others: *Canad. M. A. J.* 75: 486, 1956). The substance referred to is not recommended for therapy; its use is strictly experimental, since present knowledge about its pharmacology is still quite inadequate.

STERILIZATION OF ELECTRIC RAZORS

To the Editor:—*The advisability and feasibility of using electric razors for shaving patients in a psychiatric hospital of about 1,100 patients are being considered. How great is the need for sterilizing an electric razor before use on each patient? What quick method of sterilization can be used which would not be too time consuming and yet would be adequate and safe from a bacteriological standpoint? Could this procedure be applied to all existing models of electric razors or to only a specific make?* *M.D., Massachusetts.*

Answer.—The procedure of sterilization could be applied to all existing models of electric razors, inasmuch as the heads of most razors are easily removed and the combing and cutting surfaces are rendered accessible. However, unless there is an obvious "sore" or open lesion on the face of a patient, all that would be necessary would be to follow a specific routine of cleaning the razor with a brush, an antiseptic soap or detergent, and running water between each usage. Additional cold sterilization would offer no great advantage. However, in the presence of infection, the best and safest measures would include either boiling the razors in a lye water or, preferably, autoclaving them for 15 minutes under 15-to-20-lb. pressure. If untrained help are being used for this task, a simple procedure should be outlined and adhered to, so that the process of sterilization becomes standardized.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

the patient for several months wear only shoes with a flannel box toe and without any materials derived from rubber. If this does not bring relief, the dermatologist must then tackle the formidable problems of dermatological differential diagnosis of foot dermatoses and, if necessary, proceed to search for causal allergens among the hundreds of different materials—dyes, mordants, tanning agents, polishes, etc.—which are present in socks, stockings, shoes, and other footgear.

FORMALDEHYDE DERMATITIS

To the Editor:—*Please supply information regarding cases of dermatitis of the hands produced by the product Celeron.*

Albert Rubin, M.D., Hartford, Conn.

Answer.—Celeron is a phenolic-formaldehyde resin. Dermatitis from this class of substances is chiefly associated with the formaldehyde component. Formaldehyde as such in its gaseous state, in the aqueous solution formalin, and as it appears in unpolymerized form in various resins and plastics is a ready sensitizer. Although it is linked with phenolics which may be harmful to the skin, formaldehyde nearly always proves to be the offender. Patch tests utilizing this form of synthetic resinous product, applied to persons uninvolved in the dermatitis, usually are negative; such tests, however, are undesirable because of their readiness in provoking sensitization. In the case of persons already involved in dermatitis from formaldehyde, there is frequently a severe reaction to patch testing. So active are some phenolic-formaldehyde resins that on occasion retention of some of the formaldehyde compounds on a worker's clothing is sufficient to sensitize members of his family at home. A mild case of formaldehyde dermatitis will disappear without treatment, once the person is removed from exposure. With or without treatment, the dermatitis is likely to persist or to recur if there is reexposure.

INCREASED SEDIMENTATION RATE

To the Editor:—*Are antibiotics indicated in patients in whom the only abnormal findings, clinical or laboratory, are increased sedimentation rates? There are no subjective complaints, and the physical examinations performed as a health audit are completely normal.* *Daniel Haffron, M.D., Elgin, Ill.*

Answer.—The word "patients" is used in the query, but the statement implies that health audits were made of normal persons. It would be important to know if the sedimentation rates were slightly or greatly increased. There is no reason for antimicrobic therapy in a healthy person whose only abnormality is an increased rate of sedimentation of erythrocytes. Slight deviations in both directions occur transiently or permanently, probably dependent upon relative amounts of globulin and albumin in the blood of otherwise normal persons, just as the average body temperature and the number of erythrocytes and leukocytes vary within a normal range. The rate may be increased by anemia, menstruation, and pregnancy. It is said to be slightly faster in women than in men.

ANTIBIOTICS WITH VITAMIN C

To the Editor:—*Is there any evidence that vitamin C potentiates the effect of penicillin in treating streptococcic infections?*

Ralph L. Gorrell, M.D., Clarion, Iowa.

Answer.—There is no known evidence that vitamin C potentiates the effect of penicillin in the treatment of any infection. The proposal has been made that vitamin C might bring about more efficient absorption, and thus higher blood concentrations, of tetracycline. A study just completed of this combination shows no potentiating effect of vitamin C on tetracycline. There are several preparations that contain ant biotics and a variety of vitamins—the so-called "stres formulae—and vitamin C is included in such prepar tions. There is no evidence that these vitamin con binations potentiate the activity of the antibiotic i volved, although they may be of indirect value whe there is an actual vitamin deficiency.

EATING GOOSE EGGS

To the Editor:—*Is there any scientific evidence th there is danger in eating goose eggs?*

M.D., New York.

Answer.—This consultant is unaware of any repor indicating that goose eggs are less nutritious tha chicken eggs. Goose eggs tend to have a slightl higher fat content than do chicken eggs, but differ ences in amount of protein are not marked. The reaso for the somewhat higher fat content is due in part t the lower water content. A chicken egg will run abou 75% water, while the goose egg contains about 60 water. As far as is known, fresh eggs of almost an species of fowl, when properly prepared, can be con sidered a highly nutritious food and are not known t cause any definite diseases.

PERSISTENT PAIN AFTER HERNIA REPAIR

To the Editor:—*I was interested in the query in The Journal for June 22, 1957, page 942, regarding persistent pain after hernia repair. I have seen sever of these patients, and, when there are no ment symptoms, the local injection into the painful are of 1 or 2 cc. of a 1% or 2% solution of quinine an urea hydrochloride will usually give relief from th pain in the postoperative scar. The injections ar usually repeated once a week for five or six time Procaine and Pyribenzamine have proved ineffecti in my experience.*

Leigh F. Watson, M.D.
727 W. Seventh St.
Los Angeles 17.

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Active Session in Health Forecast . . .
Asian Influenza Group Appointed . . .
Report New High in Rehabilitation . . .
VA Medical Advances . . .
Civil Defense Hospital Units . . .

FOGARTY SEES ACTIVE SESSION ON HEALTH

Rep. John Fogarty (D., R. I.) a leading advocate of federal aid for medical research and other health programs, foresees increased activity in the health field during the next session of Congress. He places high on the list bills for federal construction aid to medical schools, including his own proposal introduced last May.

The administration has indicated it will push for this legislation, too. In an address to the American Hospital Association meeting in Atlantic City, N. J., the chairman of the important House appropriations subcommittee on health, education, and welfare, touched on the following:

Government in health—"It is now generally accepted that the health of our people is a major national resource and that the government, therefore, has a direct responsibility for the health of everyone."

Hospitals as health centers—Within the next 25 years, virtually every general hospital in the U. S. will be providing at least as much preventive service as curative service. "You are, in fact, moving closer each moment to the day when hospitals will be the focal point of health services for all of us throughout our entire lives."

Broadening Hill-Burton—The Hill-Burton hospital-clinic program, while "tremendously successful in aiding the growth health resources," cannot continue indefinitely to retain the limits of the present pattern of operation. "I would urge you to think in terms of developing new proposals to meet future needs with the aid of the basic Hill-Burton legislation."

Comprehensive health insurance—The single greatest need is for a "one-package" policy combining both prepaid medical care and hospital insurance, with encouragement of preventive medical care and periodic health examinations. On catastrophic insurance, policies should not be hedged with cancellation clauses, and premiums can be increased during the more productive years to offset the increased risk of coverage after retirement.

Mr. Fogarty says it is now generally accepted that the health of our people is "a major national resource and that the government, therefore, has a direct responsibility for the health of everyone." In addition, he feels that federal funds should be used to stimulate expenditures of funds from the states, communities, and private sources.

The AHA made Mr. Fogarty an honorary member of the association. A year ago Sen. Lister Hill (D., Ala.), co-author of Hill-Burton, was given similar recognition.

ADVISORY COMMITTEE NAMED ON ASIAN INFLUENZA

As autumn brings closer the season when influenza generally reaches its highest incidence, these were the developments on the situation in Washington, D. C.:

1. The Public Health Service announced appointment of a technical advisory group representing medical schools and state and federal medical leaders to "assist PHS in appraising the current status of influenza research and planning how to meet future research needs in this field."
2. Cases, as estimated by the PHS on the basis of incomplete reports from state health officers and military sources, continued to rise, with prospects for a total of half a million in October.
3. A total of 10,669,091 doses of vaccine had been released by the Public Health Service before Oct. 1. The latest release of 3,712,059 cc. included 2,154,309 for civilian use and 1,557,750 for military. The vaccine is distributed to states according to their population.

Surgeon General Burney said the advisory committee would help determine whether some aspects of influenza research are receiving inadequate consideration and also act as "a point of liaison" for influenza research activities within PHS and the military services.

Dr. James A. Shannon, head of the National Institutes of Health, will have general responsibility for meetings of the group, which held its first session Sept. 27. Members, as announced by PHS, are as follows:

Drs. George E. Burch, professor of medicine, Tulane University School of Medicine, New Orleans; Edward C. Curnen Jr., professor of pediatrics, University of North Carolina School of Medicine, Chapel Hill; Gail Dack, director of food research institute, University of Chicago; Fred M. Davenport, School of Public Health, University of Michigan, Ann Arbor.

Drs. Dorland J. Davis, scientific director, National Institute of Allergy and Infectious Diseases; Geoffrey T. Edsall, director, division of communicable diseases, Walter Reed Army Institute of Research;

Keith Jensen, Public Health Service Laboratories, Montgomery, Ala.; Capt. J. R. Kingston, U. S. Navy, general medicine and surgery branch, research division, Navy; Dr. Robert F. Korns, New York State Department of Health, Albany, N. Y.

Drs. Alexander D. Langmuir, chief, epidemiology branch, Communicable Disease Center, Atlanta, Ga.; Colin M. MacLeod, professor of experimental medicine, University of Pennsylvania School of Medicine, Philadelphia; Col. Thomas W. Mattingly, chief of cardiology, Walter Reed Army Medical Center, Washington, D. C.; Thomas F. Sellers, director, Georgia Department of Public Health Laboratories, Atlanta, Ga.; Joseph E. Smadel, associate director, National Institutes of Health, PHS.

Earlier Dr. Burney had written the six manufacturers of vaccine, urging them to allocate their output in line with priority recommendations of state and local advisory committees. In general priorities call for vaccination first of people in the health professions, those whose condition makes them a high medical risk, and those needed to maintain essential community services.

A spokesman for one of the manufacturers said his firm would attempt to comply with the PHS request, but that there were limits to the amount of allocating that could be done by the producers, except for shipping to states on the basis of population.

He noted that only a relatively small portion of the manufacturers' output is shipped directly to physicians and other high priority users. Most goes to wholesalers, many of whom sell directly to physicians as well as to retail druggists. This manufacturers' representative said the wholesalers might be in a better position to observe state and local priorities, particularly if they cooperate closely with advisory committees.

VA ANNOUNCES ADVANCES IN MEDICAL TREATMENT

The Veterans Administration announces these advances in medical treatment of patients at its hospitals:

At the Hines, Ill., Hospital, researchers have adopted a concrete industry idea to develop a technique that utilizes ultrasonic waves to test the extent of bone fractures and the degree to which they have healed.

Says VA: "Preliminary studies have shown that this technique offers an objective and accurate method of analyzing the degree of healing, helping in the reduction of bed stay for hospitalized veterans."

The concrete industry uses a somewhat similar ultrasonic method of testing the quality of concrete slabs and blocks.

Dr. Eugene J. Towbin of the VA hospital in Little Rock, Ark., reports isolation of a new anti-blood clotting substance that may have value in treatment of heart and blood vessel diseases. He said the new anticoagulant may be of a type that will not produce undesirable reactions, but it will have to be purified and chemically identified before it can be determined whether the substance will be of value in actual treatment of patients.

FCDA SETS REGULATIONS FOR STORAGE OF EMERGENCY HOSPITALS

In an advisory bulletin, the Federal Civil Defense Administration instructs state and regional civil defense officials on how emergency hospital units should be stored, "so that the greatest number will be at, or as close as possible, to the place of eventual use."

The bulletin outlines requirements for location, storage, and maintenance and includes a sample form of storage agreement. It says in part:

"The Federal Civil Defense Administration is now procuring and stockpiling in its warehouses throughout the United States, medical supplies, including Civil Defense Emergency Hospital units, for use in case this country is attacked. While the above procedure is in process, there must, in addition, be a more widespread and strategic distribution of hospital units so that the greatest number will be at, or as close as possible, to the place of eventual use.

"This distribution plan requires the safe, permanent storage of a hospital unit in unopened original containers at or near an appropriate facility where it could be unpacked and put into operation at time of emergency, in the least possible time. Such a manner of storage is defined as prepositioning."

Because of present limited supplies of the emergency hospital units, they are now being allocated on the basis of one per 100,000 of population in metropolitan target areas. As more hospitals are purchased by the U. S., the allotments will be increased.

In selecting sites for storage of the hospitals, FCDA advises that particular consideration be given to exits, doorways, stairways, and weight limits. Total weight of unit is 12 tons, it includes 367 cases, and occupies 1,606 cu. ft. Seventy-one cubic feet of heated storage are required, and 9 ft. of flammable and the same amount of cold storage.

Recommended locations are between 15 and 30 miles from the target centers.

"MISSING STEP" EXPLAINS MAN'S INABILITY TO PRODUCE VITAMIN C

Scurvy may be caused by a "missing step" in the human body's operation that prevents the production of vitamin C, according to a Public Health Service researcher, Dr. J. J. Burns, a biochemist at the National Institute of Health.

The enzymatic step missing in man, monkeys, and guinea pigs is found in all other animals, Dr. Burns says. Its absence was uncovered by tracing similar amounts of L-gulonolactone administered to rats and guinea pigs. Previous work had established that L-gulonolactone is a forerunner of vitamin C in the liver of the rat, which can manufacture its own vitamin C. These tests demonstrated that, while rats converted L-gulonolactone into vitamin C, guinea pigs did not.

Dr. Burns' research is described by him in the British journal *Nature*.

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INITIAL TREATMENT OF BURNS IN MASS CASUALTIES

Kent L. Brown, M.D.
and
Donald M. Glover, M.D., Cleveland

THE management of mass burn casualties has acquired new importance with increased industrial hazards and the potential use of atomic weapons. Hospitals and emergency wards are generally unprepared to meet these overwhelming situations. We found that a few patients with extensive burns completely engaged the personnel and much of the working space in a well-equipped emergency room in a 500-bed hospital. In one instance, two patients with extensive burns, treated at the same time, tied up all emergency room personnel and four additional persons from other divisions for a period of two hours. It is obvious that a large number of patients would have to be handled in a different manner if they were to receive any reasonable emergency treatment. In a major disaster, the patients with very severe burns and minor burns would be eliminated by careful sorting to give the largest number of persons with severe but treatable burns a chance for initial care and survival.

A few patients with extensive burns can completely engage the personnel and much of the working space of the emergency room of a hospital. A large number of patients have to be handled in a different manner if they are to receive any reasonable emergency treatment. Sufficient space to handle many casualties within minutes or hours is an absolute requirement for any hospital. Under disaster conditions, practically all burned patients should receive prophylactic antibiotics. Where time is important, supportive therapy for extensive burns must be emphasized and a predetermined standardized procedure employed.

The philosophy in dealing with mass burn casualties is not different from that in handling mass war injuries. The objective is to give primacy in treatment to those individuals most likely to survive their trauma. It is evident from our experience and from the experience of those institutions which have been confronted with burn disasters that a large number of burned persons could never be crowded into the average hospital emergency room. It is further evident that hospitals, for the most part, would be inadequately implemented with equipment and supplies for treatment of large numbers of patients.

Although St. Luke's Hospital has never been faced with a burn disaster, we recognize the importance of a well-formulated program should such an event occur. The plan we suggest emphasizes organization of hospital personnel, stockpiling of

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From the Surgical Service of St. Luke's Hospital.

liter of water is a satisfactory mixture. Sodium chloride in dextrose, sodium lactate, Ringer's solution, or Ringer's lactate solution may be used.

Closed Method of Treatment.—When immediate treatment is given by closed methods, a simple technique will expedite coverage of the burn. Large surfaces may be covered quickly with gauze freshly dipped in petrolatum (fig. 2*F*) before the occlusive dressing is applied. If the patient is not in shock and can stand, even more time is saved. Adherent foreign materials are removed, but vesicles are not opened. The dipping mixture, which is stored in drums or gallon cans at room temperature, is a combination of 30% amber petrolatum and 70% liquid petrolatum. The latter ingredient should be medium heavy. The stainless steel dipping pan is 4 in. deep and 14 in. square. In the center, 1 in. from the bottom, is a steel rod 1 in. in diameter which runs the length of the pan.

Rolls of fine mesh gauze 1 yd. wide are cut in 9-in. lengths and kept sterile. These rolls are saturated in the mixture by unrolling them beneath the steel rod and passing the gauze back and forth until it is soaked. Then strips of suitable length are cut to cover large surfaces. These strips are always applied vertically to the long axis of the body or extremity. A single prefabricated dressing 18 in. square and 1 in. thick will cover a large part of the front or back. Two can be rolled to cover an extremity. These are held by wrapping uniformly with Ace bandages, rolled gauze, or rolled crepe paper. Prefabricated dressings are made up of fine mesh gauze on one side and a paper cover on the other. The padding may be cotton, sheet wadding, Cellucotton, or mechanics waste. The sterile dressings are wrapped individually and stored. If this method is not practicable, gauze previously prepared with petroleum jelly or bismuth tribromphenate (Xeroform) or plain fine mesh gauze, dry, may be substituted. If necessary, the prefabricated dressing can be applied directly to the burned surface.

Open Method of Treatment.—The open air or exposure method is applicable when warmth and shelter are available, when transportation is not required, where burns are in suitable regions of the body, and where there are overwhelming numbers of burns. Often cradles are not available. In this emergency, upright poles can be fastened to the bed and a rope strung between them (fig. 2*G*). A sheet can be draped over the rope like a tent.

Adjuncts to Treatment.—Morphine is administered sparingly to patients in shock and should be given slowly intravenously. Judicious use of barbiturates will help allay apprehension and decrease the amount of narcotic required. In time of disaster, a tetanus toxoid booster dose or tetanus antitoxin should be given to all burned patients. Patients should be tested for serum sensitivity before administration of antitoxin.

Under disaster conditions, practically all burned patients should receive prophylactic antibiotics. Penicillin is preferred for parenteral use. Other broad-spectrum antibiotics may be used orally. It is imperative that patients to be transported receive prophylactic antibiotics. Patients treated in general hospitals need no antibiotic during the first 24 hours, but the use of antibiotics should be started during the second 24 hours on all who have indwelling catheters. This period gives time to eliminate patients with histories of allergy to antibiotics. The use of corticotropin (ACTH) and cortisone should be avoided except under controlled conditions.

Regardless of the method of treatment of the burned area, tracheotomy should be performed when required in extensive face or neck burns. It is also advised at earliest indication where fire has been inhaled with resultant pulmonary burns.

Ionizing Radiation.—While exposure to ionizing radiation should be recognized and recorded, patients so exposed do not ordinarily require immediate treatment. Those patients within the zone receiving 600 r or more will probably die and should be assigned to group 3, which is the category of fatal burns. Persons receiving 400 r to 600 r are assigned to group 2 where they will be treated. About half will be savable. These patients require antibiotics and, in certain instances, supportive therapy. The casualties receiving less than 400 r are handled as group 1 patients in the burn grouping. They are sent to secondary centers for observation. In burns due to irradiation, skin changes will appear late.

Disposition.—It should be noted that persons with burns complicated by other injuries may be under simultaneous treatment by other teams. In the case of a large disaster, the receiving hospital may not be able to keep all of the casualties. In that event, transportable burned patients who have been given initial care are evacuated to other centers.

Summary

A method of management of mass burn casualties is needed for efficient and rapid disposition of patients by a minimum of personnel. Planning for organization, space utilization, sorting, immediate treatment, and preparation for definitive care is important. It is hoped that these suggestions will serve as a stimulus toward a tentative plan or organization which may easily be modified to meet the requirements of each local situation.

504 Carnegie Medical Bldg., 10515 Carnegie Ave. (6) (Dr. Brown).

DERMATOLOGICAL RADIATION THERAPY IN THIS NUCLEAR AGE—AN APPRAISAL

Paul M. Crossland, M.D., Santa Rosa, Calif.

The need for radiation therapy in dermatology has been greatly reduced by recent developments in pharmacology and endocrinology. Striking successes with the use of antibiotics and steroids have led to the abandonment of radiotherapy in many diseases. In others, its use has been rendered more precise by new advancements in radiology. Irradiation of the skin can be more closely confined to the disease process by choosing the proper half-value layer from the zone of soft roentgen rays, by the use of beta-emitting radioactive isotopes, and by shielding. Dermatological radiation therapy is localized, the doses are minimal, and the exposure is fractionated. Accurate diagnosis is essential in order to avoid unnecessary irradiation, and is made possible by a thorough training in dermatology; accurate therapy is equally essential and is made possible by a thorough training in radiology and biophysics. Ionizing radiations are not the dermatologist's only form of treatment or his most important one, but he is bound to use them when such use is imperative for the good of the patient.

The nuclear age is upon us. Atom splitting threatens to become as common in our time as rail splitting was in Lincoln's day. Recently, physicists and radiation health officers have been sounding alarms regarding the perils to mankind of a slowly increasing burden of radiation exposure. These warnings, chiefly of theoretical dangers to the evolutionary future of the human race, have been broadcast in the lay press. Unfortunately, the public is now beginning to mistrust radiation exposure to the point where many patients are refusing necessary diagnostic procedures and radiation treatments. Even in the medical journals, statements have been made[1] implying that the nonradiologist may be adding unjustifiably to man's mounting lifetime exposure by careless or unwarranted use of therapeutic or diagnostic radiation. The seeds of doubt and mistrust have thus been planted in the minds of many physicians.

It is time to separate facts from fancies among these fears. Just like the scalpel, radiation is a valuable medical tool, and it is also a highly dangerous one. In using it, are we in the medical profession really going toward our goal of helping humanity, or away from it? Today it behooves every medical user of ionizing radiation to conduct a thoughtful survey of his own use of the modality with this idea in mind.

The purpose of this paper is to review and evaluate the role of radiation therapy of the skin in this nuclear age, and, insofar as is possible, to answer the insistent question: "Is dermatological radiation therapy adding unnecessarily to man's increasing radiation burden?"

Dwindling Indications

Today, the dermatologist is using radiation therapy less and less frequently as newer, more effective methods are replacing it in the treatment of many skin diseases. Some diseases which were treated routinely by radiation as recently as three years ago are now more effectively treated by means of drugs or other modalities. In some of these ailments, roentgenotherapy is no longer indicated at all. In others, it is reserved for the most resistant cases.

Pyogenic Infections.—Antibiotics have entirely eliminated the necessity for roentgenotherapy in erysipelas, sycosis barbae, and lymphangitis. It is used less often than formerly for furuncles, carbuncles, and abscesses. Granuloma pyogenicum is now almost always treated by electrodesiccation and curettage.

Vulvar and Anal Pruritus.—Topical steroid therapy has brought dramatic relief to sufferers from pruritus vulvae or pruritus ani. I have found that simple cleansing with hexachlorophene (pHisoHex) is highly effective and many times the only form of treatment necessary after the vicious circle of itching and scratching has been interrupted by topical therapy with steroids.

Atopic Dermatitis and Localized Neurodermatitis.—Atopic dermatitis and localized neurodermatitis can usually be brought under control by means of topical steroid therapy and the new tranquilizing drugs, used in conjunction with other accepted forms of dermatological therapy.

Generalized Neurodermatitis and Autoeczematization.—Patients with generalized neurodermatitis and autoeczematization are now treated with steroids given orally or parenterally, precluding the use of total body irradiation.

Plantar Warts.—Many dermatologists have given up treating plantar warts with x-rays. They have found that a much greater percentage of cures can be obtained by using topical applications of monochloroacetic acid and salicylic acid plaster or by performing surgical curettage, two methods which are not at all dangerous in comparison with roentgenotherapy.

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Monilial Infections.—Nystatin has proved to be of much greater value than roentgen rays in the treatment of monilial infections of either glabrous skin or nails.

Granuloma Annulare.—The intradermal injection of hydrocortisone into lesions of granuloma annulare is fully as effective as irradiation and has virtually eliminated the latter in treatment.

Dermatitis Herpetiformis and Lichen Planus.—The sulfones for dermatitis herpetiformis and chloroquine or bismuth sodium triglycollamate (Bistrimate) for lichen planus have greatly reduced the need for x-ray treatment of these diseases. Cases of exfoliative dermatitis are seldom treated with total body irradiation. Steroids given orally or parenterally are more effective.

Granulomatous Diseases.—Certain granulomatous diseases are now treated with drugs instead of roentgen rays. Lupus vulgaris and tuberculosis verrucosa cutis respond to treatment with isoniazid and streptomycin; blastomycosis is treated with stilbamidine.

These examples show how the indications for irradiation in the therapy of skin diseases are dwindling. Furthermore, no new indications have been established during the past few years. The dermatologist is limiting his use of ionizing radiations to conditions which are resistant to other forms of treatment. This is a definite trend.

Softer Radiations

Another important trend in dermatological therapy is toward the use of softer radiations. Their use is aimed at confining irradiation to the disease process by limiting the depth dose. Although absolute and specific regulation of the depth dose of x-rays is impossible, several means exist whereby it can be controlled to a large extent.

Grenz Rays.—Over 75% of grenz radiation is absorbed in the first millimeter of tissue. Grenz rays are particularly suitable when ionizing radiations are to be used for diseases of the eyelid, scrotum, and female genitals where underlying structures are radiosensitive and must be protected. They can be used on the scalp, axillas, and eyebrows for treatment of superficial dermatoses without incurring danger of epilation, providing accepted dosage rules are followed. The use of grenz rays should be restricted to the most superficial disease processes. A knowledge of the depth of the pathological condition is essential.

The greatest danger with grenz rays is that the operator may be lulled into a false sense of security, thinking that because they are soft they are entirely safe and can be used almost indiscriminately on recurrent or chronic dermatoses. Grenz rays are ionizing radiations, just like x-rays or gamma rays. They can and do produce radiation sequelae when used in excessive doses. Accidental overdosage can easily occur if the machine has not been accurately calibrated or if the operator uses a combination-type machine producing either grenz rays or conventional superficial x-rays.

There are still other pitfalls. Small errors in target-skin distance or timing can cause appreciable alteration in dosage. Also, the dose will be increased by approximately 50% if an unnoticed surge on the power line boosts the voltage of a grenz machine from 10 to 12 volts.

Leading authorities [2] who have made accurate comparison consider that conventional superficial x-rays in doses of 85 r are more effective and give longer lasting benefit in the treatment of benign dermatoses than grenz rays in doses of 200 r.

Contact Roentgenotherapy.—Contact roentgenotherapy provides another means of limiting irradiation to the disease process. It is gaining in popularity among dermatologists for the treatment of small cutaneous carcinomas. The contact tube is designed to administer a cancericidal skin dose at very close range, incurring a minimal depth dose.

Intermediate Zone of Soft Radiations.—A third means of limiting the depth dose to the disease process concerns an almost unexplored field. It is what I call the "intermediate" zone of soft x-rays, with wavelengths between those of grenz rays and conventional superficial x-rays. The half-value layers range from 0.02 to 0.2 mm. of aluminum. Some of the newer superficial therapy machines include this range of radiation, furnished by beryllium window tubes. By using various filters, it is possible to obtain a wide range of radiation qualities. This enables the therapist to adjust the degree of penetration to the depth of the process to be treated. The physical attributes of these intermediate soft radiations are known, but the therapeutic indications and the required dosages have not yet been established. I predict that they will be established and that this range of radiations will be used more and more by dermatologists in the future.

Radioactive Isotopes in Dermatology

In the future, radioactive isotopes will no doubt be used instead of radium and radon wherever the former will give equal or better results with less danger to operator and patient. The purpose of their use in dermatological therapy will be not only to limit the depth dose but also to attain greater specificity in irradiation than is possible with other radiative means. Radium and radon are still widely used, but the fact that one is a powdered salt and the other a gas is disadvantageous, and an isotope can usually be found which will irradiate a given lesion more effectively and accurately than would be possible with radium or radon. Many operators have turned to such promising isotopes as cobalt-60 [3] and gold-198,[4] which in addition to their excellent therapeutic value, are metals and much safer to handle. Tantalum-182 [3b] has also been used successfully in gamma ray therapy of the skin.

Beta ray therapy in dermatology is coming back into its own, since pure beta-emitting substances are readily obtainable from the atomic pile. Phosphorus-32 [5] in flexible plastic sheeting has given good results in the treatment of widespread superficial lesions over awkward body contours. Elastoplast or cloth, impreg-nated with P^{32}, is also being used with good results[4] Strontium-90 plaques [3] are commercially available and can safely be used on the eyelid without danger to the lens. Ruthenium-106[7] can be electroplated onto molds of any shape for surface application. All of these are particularly suitable to dermatological use.

Evaluation

It is evident from the foregoing survey that the dermatologist of today is "roentgen conscious" and bent on using radiation sparingly, as he would any powerful medicine. We all realize that ionizing radiations are destructive rather than stimulating. However, they are still the most effective agents for the treatment of certain diseases, including some which are benign but nonetheless disabling.

As dermatologists, we are acutely aware of the physical and mental torture which can be caused by skin diseases. As doctors we are dedicated to the relief of suffering. Furthermore, we are taught, "do no harm." Are we, as dermatologists, doing unnecessary harm when we use ionizing radiations? That is the crux of the matter. To answer this question it is necessary to consider carefully how the dermatologist uses radiation therapy.

First, he uses localized radiation therapy. Localized body exposure has only the fractional significance of total body exposure. Even for workers who are exposed daily, the permissible dose to the extremities is five times as great as the permissible total body dose. Localized irradiation, even with large doses, produces no serious systemic effect, as can be confirmed by the fact that many thousands of people who have been so treated for skin cancer have remained healthy. In giving localized therapy, the untreated areas are covered with lead shields, or cones are used. In treating acne of the face, for example, the thyroid, scalp, eyes, and lips are shielded.

Braestrup,[8] consultant to the Atomic Energy Commission on radiation protection, recommends that "In order to reduce genetic effects, unnecessary irradiation of the gonads of patients who have not passed the reproductive age should be avoided. Whenever possible, the gonads should be shielded during irradiation of any part of the body. When shielding is not feasible, the dose to the gonads, and especially to the ovaries, may be reduced significantly by the use of x-rays of low penetration. This modification will permit irradiation of skin areas near the gonads."

Second, the dermatologist uses superficial radiations with half-value layers ranging from 0.02 to 3.5 mm. of aluminum. For treatment of benign dermatoses, the half-value layer is usually less than 1 mm. of aluminum. Radiations of this quality applied to the skin are insufficient to damage the liver, spleen, bone marrow, or reproductive organs. Filtration is kept to the minimum which will insure an adequate dose to the disease process.

Third, dermatological radiation doses are small, comparatively speaking, and are usually fractionated. Single doses are 75 to 85 r, seldom over 150 r, for benign diseases. They are given at intervals of one to two weeks. As soon as the disease begins to respond, treatments are either discontinued or spaced further apart, because it is known that the effect of ionization will continue for some time. In this way, the lowest possible dose is given. The dermatologist who gives his own x-ray treatments will give only the minimum amount of radiation, because he is familiar with the natural course of the disease he is treating and can observe its progress.

Superficial therapy of benign diseases has been criticized because of the possibility of serious sequelae. Witten and Baer[2] have published the results of a study which provides an excellent answer to such criticisms. One thousand patients who had been treated with roentgen rays for benign or malignant skin diseases were reexamined 5 to 23 years after treatment. No sequelae resulted from total doses of 1,000 r of superficial radiation. This amount of radiation was administered in fractional doses, of the qualities generally used by dermatologists in the United States for benign dermatoses.

"Cook book" therapy is to be condemned. One should not arbitrarily say that acne conglobata, for example, requires eight treatments of 75 r each, given a week apart. Why give 8, when in some cases 6 will be sufficient and in others 10 or more may be needed?

It is certainly true that the use of radiation in the treatment of benign diseases should be justified in every case. Where diseases of the skin are concerned, the dermatologist, because of his training and experience, is certainly the person most capable of deciding whether it is justified in the individual case. He is not primarily concerned with radiation but with the cure of skin diseases. Radiation is not his only form of treatment or his most important one. He is trained to use it when necessary to augment his specialized procedures and topical medication.

The last and most important point I wish to make is that no therapy is of any value unless a proper and accurate diagnosis is first made. In fact, misdirected therapy can cause irreparable harm to a patient. The dermatologist's ability to diagnose skin diseases correctly and his knowledge of the various therapeutic approaches enable him to save his patients from unnecessary irradiation.

All in all, I do not believe that many unnecessary roentgens are being added to man's increasing systemic radiation burden by the qualified dermatologist.

Comment

It is regrettable that neither the scientific nor lay press has sufficiently stressed the fact that the dangers warned against in the National Academy of Sciences report are not specific dangers to the health of the individual, but theoretical and statistical dangers to the future of the human race. In mentioning the so-called permissible dose, they have neglected to emphasize that diagnostic and therapeutic irradiation in whatever dosage is necessary must always be considered permissible.

There have been two full generations since ionizing radiations were discovered, but only recently have large numbers of the population received much medical irradiation. There has been no visible increase in the mutation rate, but such effects would not become evident for many generations. Studies based on total body irradiation of mice and fruit flies have shown that genetic mutations increase in number with an increase in radiation exposure. These findings are not capable of accurate extrapolation to human beings. Harmful mutant genes tend to be eliminated in the process of evolution.

We all have a small amount of radioactive potassium in our bodies, put there by Mother Nature, and we have been living with cosmic rays for thousands of years. Each of us receives about 15 r of total body irradiation from cosmic rays during his lifetime. The Atomic Energy Commission has estimated that each person has received an average of 0.1 r from all nuclear detonations up to the present time, including those of foreign nations. This is less than 1/100 of the average total lifetime dose from cosmic rays. People living at high altitudes get more than twice as much cosmic radiation as those living at sea level, yet such people as the Swiss Alpine mountaineers are very hardy. Also, there are areas in the world where large deposits of uranium ore make the ground highly radioactive, yet the natives of these areas have subsisted and perpetuated their kind for countless generations.

The evolutionary power of cellular recovery develops irrespective of the type of noxious agent causing damage." It is logical to assume that the human body has a greater power of adaptation to environment than that of the mouse or the fruit fly.

True, it gives us an uneasy feeling when we realize that nothing is known about the long-range effects of radiation on the race of man, but perhaps there is no reason to assume that all of these effects will be bad ones and that there are no hidden remedial factors.

Experiments have shown that the life span of mice and rats is shortened by total body exposure to radiation above a certain limit of tolerance. This is considered by many to be cause for alarm in relationship to human beings. Yet, the span of human life has increased by 20 years since the discovery of ionizing radiations. A share of this increase is certainly due to the accurate and prompt diagnoses made possible by the use of diagnostic x-rays. The therapeutic use of x-rays has lengthened the lives of many patients with fatal diseases and has, in fact, cured many others, enabling them to live out their normal life expectancies. Are we to go backward in history because of a fear of radiation?

Within the medical profession, the fear of radiation therapy has been heightened by the fact that one medical group has pointed an accusing finger at other groups for misusing it. Actually, a few in all these groups have misused this modality. The criterion for using ionizing radiation should be that the user is trained in and understands radiation physics and biophysics and that he knows what he is treating, rather than that he should be a member of any particular coterie. No candidate can be certified by the American Board of Dermatology unless he is adequately trained in radiation and biophysics pertaining to superficial therapy and knows the indications and contraindications of irradiation of skin diseases.

Conclusions

This is a time for caution, but not for panic or fear of the unknown. The careless or casual use of radiation is to be condemned in any age, but the hazards of even this nuclear age are not sufficient to warrant the withholding of wisely administered radiation therapy from those who really need it.

When we use drugs, we have to consider the therapeutic index, that is, the amount of good the drug will do in comparison with the amount of harm it may possibly do. Radiation, too, has a therapeutic index. There is no safe dose, except for the patient who would be in much worse condition without it!

Those who sound warnings in the newspapers are doing a great disservice in alarming the public. Groups of physicians who cast aspersions on the use of radiation by other groups are doing a disservice to the medical profession. I am sure it will not help the cause of humanity to have the minds of the public or the physicians poisoned against radiation therapy. We must differentiate between mice and men, between total body irradiation of well people and medical irradiation of sick people.

We are doctors, bound by our Hippocratic oath to give our patients the best possible form of treatment for their ailments. We are in honor bound to use radiation therapy where it is imperative for the good of the patient.

1120 Montgomery Dr.

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DIFFERENTIAL DIAGNOSIS OF CONGENITAL HEART DISEASE IN INFANCY

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The relative value of the various data obtained from physical examination, history, electrocardiography, fluoroscopy, and roentgenography in the diagnosis of congential heart disease can be determined only from a series of patients whose thoracic viscera have been actually seen during subsequent surgery or at autopsy. Study of 279 autopsies of children has led to the formulation of 11 questions that should be answered in making a diagnosis. Painstaking analysis of all available data is important because an accurate diagnosis is possible in many cases. Surgery sometimes offers the only chance for survival, and for some congenital malformations surgery is not only palliative but curative.

It may be unequivocally stated that no discussion of the differential diagnosis of congenital heart disease should be based on other than autopsy evidence,[1] evidence obtained from surgery, or, in a few instances, from catheterization data which are as conclusive as autopsy evidence. The following discussion is based chiefly on a study of 279 autopsies performed at Children's Hospital in Washington, D. C., during the years 1935-1956. Observations at surgery considered equivalent to autopsy evidence are division of a patent ductus arteriosus, valvulotomy for infundibular or valvular pulmonary stenosis, excision of a coarctation, and closure of a septal defect. Catheterization data considered conclusive are passage of a catheter through a ductus or aortic septal defect, the catheter appearing below the diaphragm; and significantly high right-ventricular and low pulmonary-artery pressure establishing the presence of pulmonary or infundibular stenosis. In no instance is an associated lesion excluded. There is no quick and easy short cut to the diagnosis of congenital malformations. The evidence must be carefully gathered and painstakingly evaluated in every case.

History and Physical Examination

The history of the presence or absence of cardiac enlargement at birth is of importance, since relatively few lesions cause a strain on the heart sufficient to cause enlargement in fetal life. Congestive failure in infants is initially characterized by rapid respirations and usually, as it progresses, by liver enlargement; occasionally rales at the lung bases are prominent. The character and time of onset of congestive failure are of importance as indications of the severity and nature of the lesion and whether a very marked strain is thrown on either the right or the left ventricle. Of value is a positive history that the child either very definitely never has been cyanotic or very definitely has been cyanotic. There is a group about which one cannot be entirely certain as far as history is concerned. Observation of different degrees of cyanosis of the hands and feet in infants is not reliable, although a difference in the degree of cyanosis of the right and left hands, while rare, is significant. The character of the cry and the history either of anoxemic attacks or of any type of spells or feeding difficulties are of importance.

When approaching an infant for a physical examination one notes initially the degree of cyanosis at rest, observing the baby quietly without disturbing him, and then listens with the diaphragm of a Riger Bowles stethoscope to the character of the second sound, noting the presence or absence of a murmur, its character, and the pulse and respiratory rate. The rest of the information one wishes, e. g., the character of the pulses; the presence of edema, rales, liver enlargement and pulsation, and jugular distention and pulsation; presence of a thrill; and distribution of cyanosis, can be obtained accurately whether or not the baby is disturbed.

The blood pressure should always be obtained in both the arms and legs, using the flush technique with two cuffs if auscultation is not satisfactory. A cuff folded so that it may fit snugly around one-half to two-thirds of the upper arm is put in position. Another cuff is placed around the wrist and hand and pumped up to 300 mm. Then the cuff around the arm is quickly inflated above the expected systolic pressure and the hand cuff is released. The wrist and hand should be waxy white. The arm cuff is slowly and carefully deflated while the observer watches carefully for the appearance of the first flick of returning color. Values average about 10 points below those obtained by auscultation. In taking pressures in the leg it is of crucial importance to fold the cuff so that the same ratio is maintained between the cuff and upper leg as in the upper arm.

Questions That Aid in Diagnosis

Consistently accurate diagnoses can be made from good x-ray films alone, but a careful fluoroscopic examination in experienced hands is of importance.

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If, with an accurate history, careful physical examination, good x-ray films, fluoroscopic examination, and electrocardiograms, the data are carefully analyzed, and certain questions asked, one can make an accurate diagnosis in a surprisingly high percentage of cases. The questions discussed below are among those that aid in diagnosis.

1. Which chambers are enlarged? Are both ventricles and both auricles present? Is there a single ventricle or inversion of the cardiac chambers?

A study of the x-ray films and electrocardiograms can usually eliminate marked left-ventricular enlargement, as in subaortic stenosis, or marked right-ventricular enlargement, as in aortic atresia, as diagnoses. The voltage of the electrocardiogram in the precordial leads is the most reliable indication of chamber enlargement in infancy, if allowance is made for the normal right-ventricular preponderance during this period. Although the heart may weigh as much as twice the normal at autopsy, x-ray films may show little evidence of enlargement. Measurements of the intrinsicoid deflection are not ordinarily of value in infants' hearts because the ventricular wall must increase roughly 4 mm. in thickness to produce an increase of 0.01 second in the width of the intrinsicoid deflection, and hypertrophy of this degree seldom occurs in infancy.

Enlargement of the right ventricle is difficult to diagnose by x-ray examination except when it is marked, as in a truncus arteriosus. The anterior contour on fluoroscopy projects forward and may infringe on the sternum in the left anterior-oblique position; sometimes this is better seen in the right anterior-oblique position. Considerable enlargement of the right ventricle may be present without producing striking changes on fluoroscopy or x-ray examination.

A large peaked P_2 in the electrocardiogram is pathognomonic of an enlarged right auricle, although the right auricle may be enlarged without this finding. The high voltage of the P wave appears to bear a rough relation to the pressure in the right auricle. In a transposition of the great vessels, where the right auricle may be anatomically as large as the right auricle of an isolated pulmonary valvular stenosis, the voltage of the P wave is not increased. It is increased when pulmonary stenosis is present. Broad P waves in lead 2 suggest left-auricular enlargement, although posterior deviation of the esophagus seen on x-rays made after a barium swallow is the most reliable indication of enlargement of this chamber.

The diagnosis of a single ventricle cannot be made with certainty from the electrocardiogram, in spite of the absence of the ventricular septum. The precordial leads usually show "right-ventricular preponderance," although "left-ventricular preponderance" may be present. With evidence of combined ventricular hypertrophy, diagnosis of a single ventricle may be excluded with a fair degree of certainty. If the cardiac contour is somewhat bizarre, with more of the ventricular portion on the right than usual, a single ventricle may be suspected, although this indication of arrested development before the bulboventricular loop swings to the left may occur in any primitive heart. If the heart appears enlarged in the anteroposterior position and flattened in the left anterior-oblique position, a single ventricle with complete transposition may be suspected. The basic lesion in this malformation is usually inversion of the bulboventricular loop, and the resulting flattening of the heart is reflected in the oblique position. The anatomy of the various forms of single ventricle without transposition may be readily correlated with the stage of embryologic development at which arrest has occurred, and some malrotation of the vessels is the rule, but the anatomy of a single ventricle with complete transposition is very different and is usually the result of inversion.

True inversion of the auricles is extremely rare but when present may be readily diagnosed by the character of the P waves in lead 1 and lead aVR, which is that of a dextrocardia. In a dextrocardia an upright P wave in lead 1 also means inversion of the auricles. Inversion of the ventricles is even rarer and is present in a true corrected transposition. Even at the autopsy table it is sometimes difficult in the more complicated malformations to ascertain whether ventricular inversion is present.

2. *Which great vessels are enlarged? Are both present, normal, and in normal positions? Their branches?*

Moderate degrees of enlargement of the pulmonary artery are best observed in the right anterior-oblique position. When a true truncus arteriosus is present there is a distinct widening of the great-vessel shadow in the anteroposterior position which is not present when partitioning of the truncus has occurred with subsequent atresia of the pulmonary artery. When the pulmonary artery is absent the very clear pure second sound is quite characteristic. The absence of a murmur in an infant always raises the question of complete pulmonary atresia. It should be remembered that, even if the pulmonary artery is absent, right and left pulmonary arteries are, more often than not, present for operative purposes. The presence of an atypical continuous murmur should always raise the question of complete absence of the pulmonary arteries, since the blood supply to the lungs in this case may be by way of bronchial arteries from a true truncus arteriosus, and in this instance right and left pulmonary arteries are not present for operative purposes. When the blood supply to the lungs is via a patent ductus arteriosus in pulmonary atresia a continuous murmur is not present, and, as has been said, usually no murmur is present.

A narrowing of the great-vessel shadow may indicate a hypoplastic aorta, which is a rather constant feature of an atrioventricularis communis. This finding is also present in complete transposition of the great vessels with a widening of the shadow in the left anterior-oblique position. Often the great vessels will not be completely transposed, and in these instances the width of the great-vessel shadow is of no help. When the pulmonary artery overrides, it is greatly enlarged. An esophagram should reveal a vascular ring, anomalous right subclavian artery, or right aortic arch. Preductal coarctation is accompanied by slight but definite difference in blood pressure (more than 15 points) between the arms and legs with the flush technique, and usually right-ventricular enlargement in early infancy and marked right-sided failure. Cyanosis of the feet may or may not be present and is not usually a helpful point in differential diagnosis.

The clinical story in an infant with anomalous origin of the left coronary artery from the pulmonary artery is so characteristic that the experienced pediatric cardiologist will suspect the diagnosis from the history. If one has once seen such an infant in the course of the attacks of anginal pain which these children experience, one will not fail to recognize their nature. The electrocardiogram shows evidence of marked left-ventricular enlargement such as can occur in extreme subaortic stenosis or endocardial fibroelastosis, which cannot be differentiated from anomalous origin of the left coronary artery from the pulmonary artery from the electocardiogram.

When the baby has any signs of cerebral anoxia, such as "spells" or slow respirations where rapid ones would be expected, the aorta almost certainly arises from the right ventricle or is in some manner receiving a large amount of venous blood. Similarly, if the coronary arteries are receiving blood which is almost entirely venous, the voltage on the electrocardiogram may be low, indicating myocardial anoxia. Although this may not always be the case, when such a finding is present it is most helpful. One or both of these findings should always bring to mind the possibility of extreme dextroposition of the aorta with pulmonary stenosis. This is an important point because when extreme dextroposition is present an auricular septal defect should always be created in addition to an anastomosis.

3. *Is the systemic venous return normal?*

This question cannot be answered in infants without angiocardiography but should always be borne in mind when considering cyanosis not readily explained on other grounds. It is very often abnormal in isolated dextrocardia and levocardia with situs inversus and in a congenital malformation associated with congenital absence of the spleen. Distention of the superior vena cava without evidence of a shunt in the lung fields may indicate a rare anomaly of the abdominal venous return.

4. *Is the pulmonary venous return normal?*

When all pulmonary veins drain into the right auricle the lung fields are obviously congested, although in the newborn child the congestion may not be as striking as it is when the child survives for a few months. There is great right-auricular enlargement. This malformation can be readily diagnosed during life, although the findings closely resemble those in aortic atresia and preductal coarctation. Infants with aortic atresia seldom survive beyond the first month of life.

Cyanosis is not marked in these cases and is of the type that goes with a reduced cardiac output, which differs so markedly from that which accompanies a venous arterial shunt. Partial anomalies of the pulmonary venous return have no sharply distinguishing features. Rare anomalies such as complete atresia of the pulmonary veins with the pulmonary venous return by way of the bronchial veins are occasionally encountered. It should also be remembered that the anomalous pulmonary venous connection may be with the inferior vena cava.

5. *Is an arteriovenous shunt present?*

In infants this can be most readily determined by a study of the vascularity of the lung fields. It should be remembered that the lung fields of newborn children are deceptively clear. Such a shunt may occur by way of a pulmonary vein, auricular septal defect, patent foramen primum, atrioventricularis communis, ventricular septal defect (including the rare form where the jet is into the right auricle), aortic septal defect, overriding pulmonary artery, truncus arteriosus, patent ductus arteriosus, ruptured aneurysm of the sinus of Valsalva, arteriovenous aneurysm of the lung or coronary sinus, and coronary artery. The second sound in the second left intercostal space is almost invariably somewhat accentuated if a shunt is present. It should be remembered that the communications mentioned above may be present, although no shunt, or a venous-arterial shunt, may be present. If the second sound is diminished or absent, an arteriovenous shunt is most unlikely.

6. *Is a venous-arterial shunt present?*

In small infants the presence of mild degrees of cyanosis is not very easy to detect, and infants who at postmortem examination reveal lesions which must have produced a venous-arterial shunt still will have shown only little or questionable cyanosis clinically. Infants with a diminished cardiac output may show an entirely different type of cyanosis due to peripheral stasis. When definite unquestionable cyanosis is present, it usually means that a venous-arterial shunt of considerable magnitude is present, but, if it is only questionable or not detected, a venous-arterial shunt may still be present. A lesion theoretically causing differential cyanosis in the hands and feet may not in fact cause it.

7. *Is congestive failure present?*

The diagnosis of congestive failure in infancy when it is early and minimal is not easy; it can be readily confused with pneumonia. The earliest sign of failure in infancy is an increase in the respiratory rate. The white blood cell count is of little help, surgery. If no patency is found and no remedial surgery is performed, the child has, in addition to his cardiac lesion, the stress and strain on the heart that is produced by a thoracotomy.[4a]

Atrioventricularis Communis.—The clinical electrocardiographic and x-ray findings in an atrioventricularis communis are usually, although not invariably, characteristic, with left-axis deviation and right-ventricular preponderance on the electrocardiogram. It is, however, possible to confuse this lesion with certain forms of single ventricle with complete transposition. It should be stated in passing that a true patent foramen primum is a rather rare lesion, and most cases of the "patent foramen primum type" described in recent reports are in actuality cases of atrioventricularis communis. An atrioventricularis communis should be closed with the use of a pump-oxygenator, using a prosthesis, with no attempt to close the lower posterior margin except for a few fine anchoring sutures to the surface of the center of the posterior endocardial cushion. Defects under this structure, which are usually small, should not be repaired, since this cannot be done without danger of interfering with the conduction system. Possibly a collar-button-shaped piece of nonabsorbable polyvinyl (Ivalon) sponge could be pushed through such a defect and anchored a safe distance from the crest of the ventricular septum in the right ventricle. An obvious cleft in the anterior cusp, formed by a failure of the left tubercle of the anterior endocardial cushion to fuse with the parietal half of the primordium of the anterior cusp of the mitral valve, should be repaired, but no attempt should be made to reconstruct the anterior and posterior endocardial cushions into a normal posterior mitral cusp and septal tricuspid cusp.

Ventricular Septal Defect.—The diagnosis of a ventricular septal defect in small infants is most difficult and is essentially an exclusion diagnosis. If an acyanotic infant or one with only transient episodes of cyanosis in congestive failure does not prove to have a patent ductus arteriosus, the characteristic findings of an atrioventricularis communis, a contour suggesting a single ventricle with transposition, the pressure differences of a preductal coarctation, or the contour and characteristic second sound of a truncus arteriosus from which the pulmonary arteries arise, he probably has a rather large ventricular septal defect which communicates between the left ventricle and the inflow tract of the right ventricle in proximity to the septal cusp of the tricuspid valve or, more rarely, into the infundibulum of the pulmonary artery. There is more likely to be overriding of the aorta in infancy (Eisenmenger complex). A large auricular septal defect—even a single auricle as an isolated lesion—does not usually produce congestive failure in early infancy. Children with isolated ventricular septal defects who go into failure in infancy will usually survive with vigorous antibiotic therapy and treatment of their failure. Rarely such children will not respond, and these infants may benefit from a "pulmonary tuck" operation[5] as a stopgap procedure with the hope that they will survive to an age when open cardiac surgery is less hazardous. The decision must be carefully weighed in each individual case. A ventricular septal defect is often accompanied by a small auricular septal defect.

Endocardial Fibroelastosis and Anomalous Origin of Left Coronary Artery.—Endocardial fibroelastosis and anomalous origin of the left coronary artery from the pulmonary artery are distinguished by marked left-ventricular enlargement, both on x-ray and electrocardiogram, in a child without cyanosis or evidence of a shunt or aortic stenosis. (However, right ventricular preponderance may accompany endocardial fibroelastosis in the presence of an associated anomaly of the mitral valve.) A secondary type of marked endocardial fibroelastosis, which is quite distinct from the primary type, develops in all cases of anomalous origin of the left coronary artery from the pulmonary artery. For this reason, a simple transposition of the segment of the pulmonary artery from which the left coronary artery arises to the aorta, even if technically possible as an open procedure, would not be physiologically sound. These two lesions should both be treated by one of the procedures for vascularization of the left ventricle.

Aortic Stenosis.—Children with congenital aortic or subaortic stenosis, lesions which are rare, should have open remedial surgery without too much delay, if they are having fainting spells. These children have a tendency to die suddenly, and marked myocardial fibrosis due to coronary insufficiency is found in those who survive for any period.

Comment

Far too many infants are being allowed to die of congenital malformations of the heart for which not only palliative but curative surgical procedures are available. Funds are available to provide financial assistance for such children and although the surgical mortality is admittedly high these infants should have their chance for survival. They remain the greatest challenge in the field of cardiovascular surgery.

An infant with a congenital malformation amenable to surgery should only be operated on at a center with a record of successful achievement in older children with less complicated malformations and facilities for handling small infants. It is an experienced, smoothly organized team which is most needed for success, regardless of the abilities of individual members. Given an experienced team, it is the abilities and experience of the surgeon which are paramount. It has been my observation that it is the centers and surgeons with the most experience who are most keenly aware of their own limitations and most willing to refer complicated cases to those in whose hands the patient's chances for survival are the greatest.

Summary

The differential diagnosis of congenital malformations of the heart in infancy requires painstaking analysis of all available data. An accurate diagnosis can be made in a high percentage of the cases in which the lesions are amenable to surgery. Infants with congenital malformations should be operated on only in centers where experienced personnel are available.

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Dr. H. T. Bahnson gave assistance in the preparation of this report.

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TWIXT THE CUP AND THE LIP

Harry F. Dowling, M.D., Chicago

The development of a drug is an intricate process, involving researchers, manufacturers, clinical investigators, and many others. All of the information obtained about the drug must be brought to the practicing physician, who is the one to prescribe or administer the drug, and it is important that this information be timely and accurate. In the evaluation of new drugs, the practicing physician should do three things. First, he should learn the mechanism by which the drug works, rather than the results somebody says it will produce. By learning the generic name, the physician can understand much about the drug. Second, when asked by a patient to prescribe a drug that is not indicated, the good physician explains rather than prescribes. Last, doctors should read pharmaceutical advertisements critically, and not be hesitant to write to editors of journals as well as drug manufacturers when they question the truth. Only in these ways can the medical profession advise and assist such a dedicated organization as the Food and Drug Administration to properly judge the merits of a drug.

Drugs are discovered, manufactured, and tested by scientific methods. On the other hand they are produced and marketed through a blend of personal and social motives; they are prescribed by doctors with varying knowledges and skills, and they are taken by patients who have different degrees of information, interest, and precision. Drugs are brewed in the cup of science; they are drunk through a patient's lips, and "there's many a slip twixt the cup and the lip."

Scientific attention is usually turned toward the discovery of drugs; in the present paper I shall consider the path from their development to their use. As an example, let us take chlortetracycline, one of the first antibiotics to be produced by a pharmaceutical company. After screening hundreds of specimens of soil, Duggar isolated Streptomyces aureofaciens, in the fall of 1945. Its in vitro antibacterial activity was demonstrated later in the same year.

Preparation of crude concentrates that protected animals against bacterial infections required an entire year, and further purification and initiation of large-scale production required nearly two years more. It was not until September, 1948, that clinical tests were considered adequate for submission of the data to the Food and Drug Administration. Approval by this agency was granted in October, 1948, and chlortetracycline was finally marketed on Dec. 1, 1948.[1]

From the Research and Educational Hospitals and the Department of Medicine, University of Illinois.

Chairman's address, read before the Section on Experimental Medicine and Therapeutics at the 106th Annual Meeting of the American Medical Association, New York, June 4, 1957.

The path of a drug from cup to lip, which took over three years in the case of chlortetracycline, is shown in Figure 1. Basic research by medical schools, pharmaceutical companies, and others leads to the discovery of a new drug. It is produced in a form suitable for administration by the pharmaceutical manufacturer. Its efficacy must then be tested in vitro, and its efficacy and toxicity, in lower animals. If these tests are satisfactory, the drug is tried in patients by investigators outside of the pharmaceutical industry. The accumulated information is then submitted to the Food and Drug Administration for approval or to the National Institutes of Health in the case of biological products. When approval is forthcoming the drug can be packaged, advertised to the profession, and sold. At the same time, investigators who have tried the drug in patients are informing the medical profession when and how this drug should be used. All of these paths lead a single goal: administration to patients. This benefits the patient through the prevention, amelioration, or cure of disease and brings profits to the pharmaceutical industry and related groups. These twin benefits act as sources of energy to start the process over again.

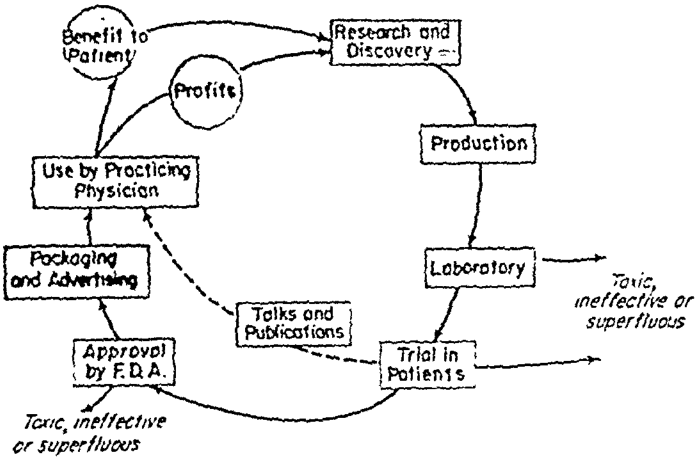

Fig. 1. Diagonal lines refer to the pharmaceutical industry; horizontal lines, to the investigators in medical schools and hospitals, and stippled areas to other groups (government agencies, the practicing physician, and the patient).

This system is an outstanding example of man's genius for organization. It has been developed by idealistic motivation, along with down-to-earth planning; it balances the interests of scientist, investor, producer, physician, and patient. And it has filled the cup to overflowing. The number of effective drugs is beyond the highest hopes of a century ago and is increasing all the time. In the thirty-year period from 1905 to 1935 new drugs were introduced into the United States "Pharmacopeia" at a rate that averaged six per year, while in the succeeding twenty years the average yearly rate was thirty-seven.[2]

Yet the system, like all systems, can be perverted. The process of fundamental research, followed by the development of worth-while new products and the successive stages necessary to bring them to the patient, is a long one. The desire to help the patient and the desire for profits provide sufficient energy to power the process; but some have discovered that if this energy is applied at a later stage, the path from profit back to profit again can be speeded up. This is shown in Figure 2. Energy, instead of being directed toward research and the discovery of new drugs, is frittered away on dozens of unimportant modifications designed to compete with drugs that are already available. One example of this is the marketing of mixtures of antibiotics. As of November, 1956, there were on the market twenty-nine preparations containing two antibiotics, twenty containing three, eight containing four, and four preparations that contained five antibiotics apiece.[3] I have shown elsewhere [4] that there is no good reason for the use of any of these sixty-one mixtures.

If this trend continues, we shall soon reach the chaos that exists in Germany. According to a recent article in The Lancet,[5] there are about 6000 proprietary preparations marketed in Western Germany, made by 565 different firms. Most of these preparations contain several or many substances; five or six is the rule, and more than ten is not at all rare. One firm has put twenty-two different substances into one tablet. It has become unfashionable to use one drug by itself. When the author of the article asked for ephedrine tablets in a big hospital, he was told that these were no longer stocked.

This side-tracking of energy within the system has further effects. When the drugs that are produced so prodigally are tested in the laboratory, only those are eliminated that are obviously toxic. Drugs that are superfluous because they duplicate the action of others that are already available and drugs that are of dubious effectiveness are continued in the process and eventually reach the market (Fig. 2). For instance, thirty-three different antihistiminic drugs are being sold at present,[6] all having practically identical actions but different names and dosages. Similar excesses can be found among other groups of drugs, especially the vitamins, the antispasmodics, and the tranquilizing drugs.

At the next step in the process pressure is applied upon investigators to report that all the drugs recently produced are beneficial to patients, that they are better than existing drugs, and that they have fewer side-effects. Since this tremendous multiplication of new drugs exhausts the existing facilities for clinical investigation, inexperienced investigators are cajoled into assessing drugs in patients. Some learn the proper methods and acquire a critical sense during the experience; most do not but unwittingly call a spade a diamond—to the confusion of the Food and Drug Administration, the exasperation of the experienced and honest investigators, the quick profit of that particular manufacturer, and the loss of prestige of the medical profession and of the pharmaceutical industry as a whole.

Increased pressure is applied in turn upon the Food and Drug Administration. No words can speak too highly of the services rendered to physicians and patient alike by this dedicated body of public servants. Quietly and unobtrusively, patiently and honestly, they attempt to judge the merits of a drug solely on the evidence presented to them. Their problems, however, are similar to those of every regulatory agency of the government: they hear one side of the story loudly and incessantly; they hear the other side only sporadically and feebly. It is the drug manufacturer's business to present his viewpoint; it is to his interest to present it attractively and forcibly. The consumers, on the other hand, have no paid advocates. Their viewpoint is presented by persons who must spare time from everything else to do it and who are not usually well acquainted with these channels of communication. This is all the more reason why, in the field of the regulation of drugs, physicians and organizations of physicians, such as the American Medical Association, should make it their business to advise the Food and Drug Administration.

The excess pressure is applied next to advertising. The description of the drug on the label and the circular accompanying the package must be accurate and well documented and must be approved by the Food and Drug Administration. Advertising pertaining to a drug, on the other hand, is under the jurisdiction of the Federal Trade Commission, who can stop a company from making a particular statement only if the statement constitutes an unfair or deceptive act. This opens the way for abuses.

Within recent years the drug industry has discovered that the techniques that had been used so successfully in the advertising of soaps and tooth pastes and of cigarettes, automobiles, and whiskey could be used as successfully to advertise drugs to doctors. Advertising to doctors has become flamboyant, as shown by two-page gaily colored spreads in nearly every medical journal. Advertising has become incessant; nearly identical advertisements for a new drug appear in each day's mail for weeks on end. Advertising is without question confusing. The multiplicity of trade names makes it difficult to remember the actions and uses of any. Richardson Evans, writing in the English *National Review* in 1890, said: "Suppose a dozen people are in a small room. Two begin to talk to each other at the top of their voices. The others must either give up conversation or shout also. The result is that no one hears as well as before and that comfort is at an end. So it is with advertising. . . ."[7] Advertising to doctors has now reached this peak, and we are deafened by the din.

This leads us to the next step in the process: the use of drugs by the practicing physician. The doctor's sources of information include textbooks, journals, and speeches, written or delivered by those who have studied the drugs in laboratories and in patients. Most practicing physicians do not see a sufficient number of patients with any one disease to make a critical trial of a new drug themselves. When the drug becomes available the most they can do is to acquire skill in its use. If this information is "beamed" clear and true to the doctor, he is willing to listen to the "commercials" and patronize those who have, through their investments and their foresight, brought the drugs to him. But today the "commercials" are so loud, incessant, and brash that they jam the channels of communication. The bewildered physician prescribes by suggestion and not from information.

At this point the reader will say: "Well, even if this makes the physician a shifting weathervane and the patient an unwitting guinea pig, the writer must be an ingenuous idealist to expect the pharmaceutical manufacturers to change their methods so long as they are putting money in their pockets." This last phrase is the key to the answer. You will recall that the twin sources of energy for the system are profits and benefit to the patient. It is already evident to most doctors, and it will soon become evident to the public, that energy has been diverted from the pathway that leads to the greatest benefit to patients. With the inevitable disillusionment that comes with the failure of each useless modification to make any advance, the pharmaceutical industry will lose its prestige and with this will lose its financial backing. It will fall, and the medical profession will be dragged down with it. Since such a catastrophe would involve doctor, industry, and patient alike, we may well look to see what each can do about it.

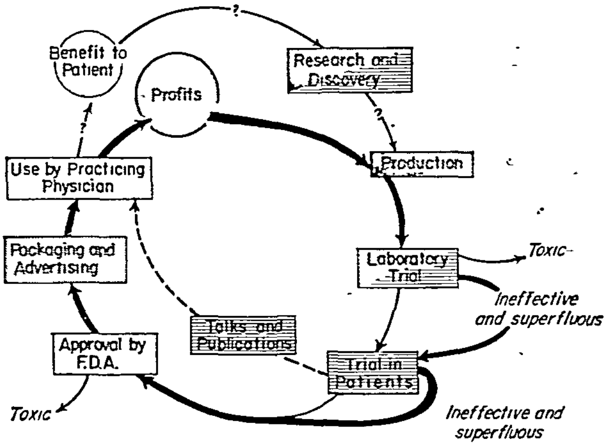

Fig. 2.—See figure 1 for key.

To physicians I would say first: Keep informed. Learn the mechanisms by which drugs work, rather than the results somebody says they produce. Look for and remember the generic name, for this tells something about the drug, while the trade name tells nothing. Avoid substituting drugs for diagnoses.

Furthermore, since advertisements for new drugs appear so quickly, some mechanism must be set up to bring authoritative information rapidly from investigator to practicing physician. The challenge is thrown to medical societies, medical schools, and specialty groups: keep the profession informed!

My second suggestion to physicians is, inform the public. As Vannevar Bush has said[8]: ". . . public opinion is not formed by the radio and the press or even by those who control these media. It is formed by that minute fraction of the population which thinks and speaks, by that small but powerful minority, disagreeing on every issue, arguing and ridiculing, which looks beyond the diversion of the moment and influences because it labors to understand." With regard to drugs we are that "small but powerful minority," and we must use every means to make our opinion known. When a doctor prescribes a drug for no reason except that the patients wants that drug, the doctor is allowing the lay press to take over the job of health educator to his patients. The good physician explains instead of prescribing.

My third suggestion to doctors is to reject misleading information and repudiate those who purvey it. Doctors should read advertisements critically. They should write to editors of journals and to drug manufacturers when they question the truth of an advertisement. They should not listen again to someone who has misled them once. They should prescribe as far as possible only those drugs made by companies with high standards of advertising and read only the journals that accept that kind of advertising.

In the past the Council on Pharmacy and Chemistry of the American Medical Association (now the Council on Drugs) has led the fight against false advertising by quacks and vendors of patent medicines. The battle front of today has shifted, and false advertising to the public is no longer the major issue. For the future the Council needs to align its forces against false advertising to the doctor.

To pharmaceutical manufacturers, I would make three suggestions: (1) that they emphasize basic research and the discovery of new drugs and avoid minor variations of existing drugs; (2) that they weigh the proposals of their sales departments in the light of advice from their scientific staffs and from competent impartial clinical investigators, and (3) that they revise their advertising methods. Advertising should not be premature; advertisements for a new drug should not appear before a single clinical article is published in a reputable medical journal. Advertisements should be in keeping with the dignity of the industry from which they come and the good sense of the profession to which they go. The time is already past due for reputable manufacturers to establish a code of ethics for advertising and abide by it. When this has been done the words "ethical manufacturer" will mean a manufacturer who works for the good of the public rather than meaning, as at present, one who advertises only to the medical profession, no matter how he advertises.

The regulatory agencies of the government function as impartial judges for the benefit of the consumer. Laws always lag behind actuality, and budgets are always deficient; but in spite of these limitations the regulatory agencies deserve great credit for keeping the present system from getting out of hand altogether. How can they do the job better? Certainly they should insist upon honest and thorough investigations by clinical investigators. They should inquire how the cases were obtained for trial; were they selected out of a larger number of cases and, if so, by what criteria? Funds should be available to them for financing tests of drugs when the evidence submitted is equivocal or unconvincing. They should also be able to employ consultants to advise them in difficult cases. These agencies need the strong backing of the medical profession; the patient's welfare must be kept continually before them so as to counteract the obvious pressures from the pharmaceutical industry.

Many people believe that the laws should be amended so that the Food and Drug Administration can pass on the efficacy of a drug. At present, except in the case of the drugs that are certified, which include insulin and certain antibiotics, the Food and Drug Administration cannot prohibit the sale of an ineffective drug; its only recourse is to seize the drug as misbranded if a therapeutic effect is claimed in the circular that accompanies the package. This seems a roundabout way to protect the public.

Furthermore, the present laws leave all advertising, except that which accompanies the package, to a separate agency, the Federal Trade Commission. In spite of the excellent cooperation that exists between the two agencies, this is a cumbersome method which has not succeeded in giving adequate protection to the patient. Many people believe that the law could be enforced more efficiently and more completely if advertising as well as labeling were regulated by the Food and Drug Administration.

My suggestions can be summarized in two words: information and regulation; prompt and exact information for the practicing physician from the investigator, the professional societies, the medical journals and the specialty groups; willingness on the part of capable investigators, teachers, and other leaders in medicine to spend time in spreading the truth about drugs; probity and sanity on the part of the manufacturers in keeping advertising factual rather than suggestive, direct rather than irrelevant, truthful rather than misleading; recognition on the part of the practicing physician that his is the final responsibility for the use of a drug and that he cannot give this decision over to anyone else. Regulation there must be for those who will not work from higher motives: regulation by industry to the extent that it can be done; regulation by organizations of physicians where they can help, and regulation by government where the others fail to do the work. Let those who object to the third alternative strengthen the first two.

These things should be done; these things can be done; shall we here agree that these things will be done? In the words of George Washington, "Let us raise a standard to which the wise and just can repair."

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UNIFORMED SERVICES DEPENDENTS' MEDICAL CARE PROGRAM

Major Gen. Paul I. Robinson (MC), U. S. Army

A program to provide improved, standard medical care for dependents of members of the Army, Navy, Marine Corps, Air Force, Coast Guard, and certain other uniformed government services was established by law Dec. 7, 1956. Six months of operation yielded data from 21,363 cases indicating the trend of the program. Maternity cases comprised 47% of the total. Twenty per cent of the participants in the program were males, and the majority of these were children. Physicians' fee schedules have been developed with the help of teams comprised of a physician, a certified contracting officer, a lawyer, and an auditor. It has been difficult to specify how much service should be included for a given fee. Other problems include the provision of emergency care for acute emotional disorders. The program appears, nevertheless, to be a workable one and has enlisted the combined efforts of many national and state organizations.

The Dependents' Medical Care Program is designed to provide improved and uniform medical care for dependents of members of the uniformed services and thereby enhance the morale of service personnel. The program continues the provision for medical care in uniform service facilities for authorized dependents of both active duty and retired personnel; parents or parents-in-law (if dependent and provided the parent or parent-in-law actually resides in a household provided or maintained by the member); and deceased members' dependents (if eligible). Unlimited outpatient care is provided in service facilities. In civilian facilities, however, the law extends essentially to hospital care only for wives and children or dependent husbands of members of the uniformed services on active duty for a period greater than 30 consecutive days. Outpatient care in the civilian program is strictly limited to maternity care and bodily injury. The term "uniformed services" applies not only to the Army, Navy, Marine Corps, and Air Force but also to the Coast Guard and to commissioned members of the Public Health Service and Coast and Geodetic Survey.

Only a slight change can be noted in the medical care rendered in service facilities from that which has been traditionally available. Medical care available in civilian facilities, however, is an entirely new development, and it is this part of the program that I wish specifically to discuss.

Executive Director, Office for Dependents' Medical Care, Office of the Surgeon General, U. S. Army, Washington, D. C.

Read before the Section on Military Medicine at the 106th Annual Meeting of the American Medical Association, New York, June 5, 1957.

The law designates the Secretary of Defense to administer the program and to prepare a directive in conjunction with the Secretary of Health, Education, and Welfare. The Secretary of Defense delegated his authority for operation of the program to the Secretary of the Army who redelegated this authority through the Army staff to the surgeon general of the Army. Inasmuch as this was an entirely new and somewhat foreign function to that performed within his office, and because it concerned medical care for dependents of members of the other six services, the surgeon general established an almost autonomous Office for Dependents' Medical Care, headed by an executive director.

The law was signed by the President on June 7, 1956, to be effective on Dec. 7, 1956. An interagency committee, under the supervision of the Assistant Secretary of Defense (health and medical), was established to prepare implementing instructions, definitions, delineations, extensions, restrictions, and procedures considered necessary to administer the program. This committee sought and utilized the advice of civilian representatives, notably those of national organizations (American Medical Association, American Hospital Association, Blue Cross Commission, Blue Shield Commission, and the insurance industry). The deliberations of this committee were incorporated in a document entitled "Joint Directive for Implementation of the Dependents' Medical Care Act" which was officially signed on Oct. 18, 1956, by the Secretary of Defense and the Secretary of Health, Education, and Welfare. This directive is the basis of all actions for administering the program.

The program was placed in operation on the effective date (Dec. 7) in the 48 states, Alaska, Hawaii, Puerto Rico, and the District of Columbia. Contracts were in force, with the Blue Cross Commission and the Mutual Benefit, Health and Accident Association of Omaha acting as fiscal administrators for hospitals within designated geographical areas. With a few exceptions, contracts were in effect in all states, Alaska, Hawaii, Puerto Rico, and the District of Columbia with the medical association of the area and/or a fiscal administrator for payment of physicians' claims. The medical associations as well as the Blue Shield organizations of Ohio and Rhode Island, for reasons of their own, decided not to participate in the program. Neither state, however, objected to the government making arrangements for a fiscal administrator to handle claims by physicians participating in the program. Contractual arrangements were made with Mutual Benefit, Health and Accident Association of Omaha to pay physicians in both of these states. Alabama, Hawaii, and Idaho, for various reasons, had difficulty in arranging for a fiscal administrator to meet government standards. Medical associations of these states readily entered into contractual arrangements, and questions concerning the fiscal administrator were expeditiously resolved. In Maine, the inability of the local Blue Shield organization to enter into contractual arrangements had to be resolved by action of the Maine legislature. In the meantime, the program was fully in effect in these six states, and physicians' claims were promptly paid by the commanding generals of the Army area under whose jurisdiction the state or territory was located. The Army commands are experienced in this field because for many years they have handled physicians' and hospitals' claims for army active-duty personnel who became injured or ill away from their stations.

Financial Aspects of Program

During the implementation of the program, it was considered necessary and appropriate that physicians' fee schedules be developed. The interagency committee prepared from the California schedule a list of items applicable to the program and forwarded a blank schedule to the various state medical associations with a request that a maximum fee (based on the medical practice within the state) be developed for each item which would represent the charge to an individual with an income of approximately $4,500 per year. More than 80% of the members of the uniformed services earn less than this amount. It was intended that physicians charge their usual fees and not exceed in any instance the maximum schedule unless a special report of unusual circumstances was made. This schedule was to be negotiated with representatives of the government at a later date. This negotiation was accomplished in late October and November, 1956, in the Office for Dependents' Medical Care by teams comprised of a physician, a certified contracting officer, a lawyer, and an auditor. The teams met with representatives of the states and territories and carefully reviewed each item to assure that consideration had been given by the committees within the states to the criteria which had been furnished. The state medical associations were given the right to submit separate schedules for different areas within their jurisdiction; however, none did so. No attempt was made to standardize the fees nor were comparisons of states' submissions made during the entire negotiation period. The negotiated schedules had wide and unexplainable variations. The nomenclature of the items contained in the fee schedule did not mean the same to all concerned. How much service was included for the fee was a difficult problem, particularly in orthopedic categories. There were and still are many problems in connection with the fee schedules.

The program has been in effect more than six months. Statistics available are incomplete because of necessary and customary delays in billings and transmissions. Some facts have been compiled from claims submitted to date, and while this information in many cases represents small samples they indicate a trend of the program.

Data compiled from 21,363 cases indicating type of care (principal procedure or operation) revealed that medical and pediatric visits comprised 23.3%; maternity care cases, 47%; tonsillectomies, 11.6%; genitourinary disorders, 6.7%; abdominal operations, 3.8%; injuries, 2%; tumors, 1.9%; and others, 3.7%.

The volume of business data was compiled as of May 22, 1957. There were 64,721 hospital claims at total cost to government of $6,542,407. The average cost of hospital claims was $101.40. There were 310,660 hospital days listed at total cost to government of $21.06. (Patients paid approximately $1,682,746 additionally.) There were 73,689 physicians' claims at total cost to government of $5,048,000. The average cost of physicians' claims was $68.50. A sample calculation of per diem and per case costs to government was cost of patient day (hospital and physician), $50; cost per case (hospital and physician), $250.

Twenty per cent of the participants in the program were males, and the majority of these were children. Eighty per cent of the participants were females. Twelve per cent were under 1 year of age; 22% from 1 to 13 years; 14% from 14 to 19; 38% from 20 to 29; 12% from 30 to 39; and 2% over 40. Forty-two per cent resided apart from their sponsors because of the exigencies of service.

In service distribution, dependents of Army personnel comprised 24.6%; of Navy and Marine Corps personnel, 30.8%; of Air Force personnel, 42.5%; and of Public Health Service personnel, including Coast Guard and Coast and Geodetic Survey, 2.1%

Problems in Administration of Program

Since the inception of the program, there have been literally thousands of questions in the indefinite areas. In maternity care alone there were many questions concerning charges which arose as a result of the various developments, changes, and occurrences during the management of the period of pregnancy. These questions have been met with the best knowledge available and, in general, the program is operating on principles which have been rather universally accepted.

Emergency care of acute emotional disorders (care of nervous and mental diseases is specifically prohibited by the law) has been a difficult problem. In general, the program now allows up to 21 days' care in such emergencies with reasonable extensions if additional time is required to (1) reach a responsible sponsor, (2) obtain acceptance in a state institution, (3) complete short-term treatment if cure or remission will allow return home, and (4) determine by diagnosis if long-term care is needed. Treatment of tuberculosis is allowable under the program if the case is contagious, acute, or amenable to surgery. Medical care in a hospital for chronic diseases is permissible if an acute exacerbation occurs or if the physician believes certain treatment will contribute to the life, health, or well-being of a patient. Likewise, elective surgery which the physician considers indicated and is not desired by a patient solely for cosmetic or other reasons is considered to be a proper charge to the government under the program. Great dependence is thus placed on the physician's judgment.

In the operation of this program, it is imperative that the Army, Navy, Air Force, and Public Health Service be kept fully informed and, in fact, conjointly make many of the decisions. A liaison committee has existed since the operation of the program. A formal meeting is held once each month and daily contacts are made concerning problem cases. It is also necessary that the A. M. A., A. H. A., and American Dental Association be thoroughly informed concerning the program and that these organizations participate in many decisions. The Medical Care Committee of the A. M. A. periodically meets with representatives of the Office for Dependents' Medical Care. At these meetings, consideration is given to the broad problems which have arisen. A permanent contact has been selected in the Washington office of the A. M. A. in order that daily problems which might affect the profession can be discussed. The A. H. A. also has a committee which meets periodically with the Office for Dependents' Medical Care on problems affecting hospitals of the nation. Almost daily communication is maintained with its Washington office.

Many meetings and discussions as well as detailed studies have been conducted with the dental profession since the inception of the program because the problem of adjunctive dental care has been one of the most difficult. Very close contact, of course, is maintained at all times with the Blue Cross and Blue Shield commissions and with the various insurance companies which are contractors under the program.

The Dependents' Medical Care Program is not completely subsidized by the government. A patient has certain monetary responsibilities, and the government assumes the remainder. A physician may charge the government more than the scheduled fee if he can reasonably justify the additional charge. However, he cannot charge the patient more than the amount stipulated in the law or directive. The program, except for the Office for Dependents' Medical Care, is operated by civilian agencies whose civilian function is to operate similar programs. There has been generally good acceptance of the program by physicians, hospitals, and medical and hospital organizations. While the law provides for the restriction of the right of dependents to use civilian physicians and facilities in any area, no such restriction has been made or even proposed. The eligible dependent (wife, children, and dependent husband of active-duty members) has free choice between uniformed service and civilian facilities.

There are evidences of benefit to morale within the services which, at this early date, can be based only on chance remarks. Information concerning the program is reasonably well disseminated. On the whole, the program now appears to be a workable one which fits well within the framework of our democratic ideals. And whatever success it may now claim is due to the combined efforts of the national and state medical and hospital associations, the various insurance plans, both profit and nonprofit, and the support and participation of the physicians and hospitals of the nation. It is hoped that the program's future will be such that it can serve a most useful and needed service for our country both in time of peace and during any mobilization.

BENZATHINE PENICILLIN G IN THE PREVENTION OF STREPTOCOCCIC INFECTIONS

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and
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The effectiveness of benzathine penicillin G in preventing streptococcic pharyngitis was determined during an epidemic of this disease among military personnel at an air force base. A single intramuscular injection was given to each of 741 men, representing about 10% of the exposed population. Three dosage levels were tried, and all were equally effective in eliminating group A streptococci from the throat in carriers, while men who had received a placebo injection continued to harbor the organisms. The duration of protection, however, varied with the dosage. The first streptococcic infections began to occur as early as the 8th day after injection in 240 men who had received 300,000 units, while in 246 men who had received 1,200,000 units the first illnesses were observed on the 44th day. It appeared that 1,200,000 units of benzathine penicillin G protected the individual for approximately six weeks.

Benzathine penicillin G is employed for the prevention of streptococcic infections in rheumatic patients. For this purpose it is recommended that 1,200,000 units be given by intramuscular injection at monthly intervals.[1] Although this prophylactic regimen appears to be adequate for the prevention of streptococcic infections and recurrences of rheumatic fever,[2] there is little information concerning the duration of protection afforded by this and other doses of benzathine penicillin G. Since the incidence of reactions to benzathine penicillin G is related to the amount injected,[3] further information concerning the duration of protection afforded by various amounts of benzathine penicillin G is required. The present report describes the results of such a study and, in addition, presents data on the effectiveness of a single injection of benzathine penicillin G on the elimination of group A streptococci from the tissues of the oropharynx and tonsils.

Methods and Results

Oropharyngeal cultures were streaked on 5% sheep blood agar, and after 18 hours incubation colonies exhibiting beta hemolysis were isolated. Serologic identification of these isolates was performed by standard techniques.[4]

In November, 1954, the school area at Warren Air Force Base, Wyoming, became involved in a rapidly increasing epidemic of streptococcic pharyngitis. When the hospital admission rates for streptococcic infections reached 16 per 1,000 per week, benzathine penicillin G was administered as prophylaxis to approximately 25% of the airmen in each of six student squadrons. The number of men who received prophylaxis totaled only 10% of the entire student population. By administering the drug to such a small fraction of the personnel, it was believed that the epidemic would be relatively unaffected so that when the period of protection had passed those men who had received prophylaxis would soon acquire infections.

To determine the duration of protection afforded by benzathine penicillin G against streptococcic infection, three different doses were employed. As

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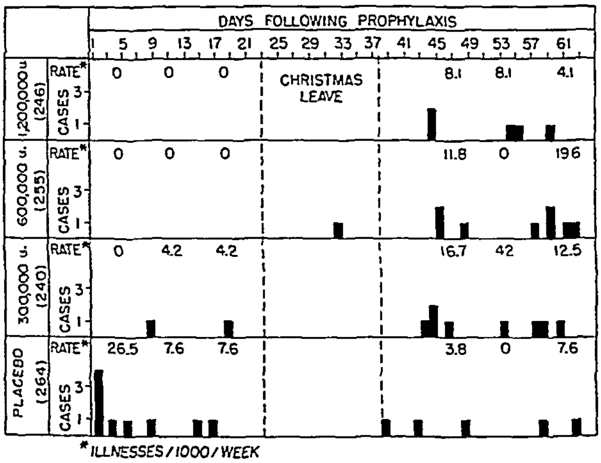
shown in the figure, each group receiving penicillin was composed of approximately 250 airmen, whereas saline solution was administered to 264 men who served as controls. During the subsequent nine weeks, all airmen reporting to sick call with fever and respiratory symptoms or showing exudative tonsillitis or pharyngitis were admitted to the hospital. Oropharyngeal cultures were obtained from each patient. In the figure the time of occurrence of each illness characterized by exudative tonsillitis or pharyngitis and a positive culture for group A streptococci is indicated.

During the first week after the administration of prophylaxis no streptococcic illnesses as defined above were observed in the three groups receiving penicillin, whereas the weekly rate for the control group was 26.5. During the second and third weeks two infections were observed among the men receiving 300,000 units, but none developed in the men receiving larger amounts of penicillin. Since between the 22nd and 38th day after prophylaxis most of the men were not on duty, the data concerning the number of infections during this period are not reliable. One illness did develop among the men receiving 600,000 units. After the return of the population after Christmas vacation, illnesses occurred in all four study groups. The first illnesses in the group which received 1,200,000 units developed on the 44th day after injection.



Comparative effect of various amounts of benzathine penicillin G in prevention of streptococcic infections.

Table 1 shows the results of cultures of the oropharynx obtained just prior to prophylaxis and two, six, seven, and nine weeks later. Group A streptococci were isolated from 13 to 22% of each group prior to prophylaxis. At each subsequent survey there was little change in the carrier rate of the control group. In contrast, at two weeks no positive cultures were obtained in the groups receiving 1,200,000 or 600,000 units. There was also a tenfold reduction in the carrier rate in the group receiving 300,000 units. At the time of the sixth-week survey, a few positive cultures were recorded from the two groups receiving the largest amounts of penicillin. At the ninth week the carrier rates were approaching the levels observed prior to prophylaxis, but they were still considerably lower than that observed in the control group.

Since the carrier rate at any of the follow-up examinations was composed of both chronic carriers and individuals who had recently acquired a new organism, it is difficult to interpret the results of these culture surveys. In table 2 are presented the results of all cultures obtained during the nine-week period of observation in those individuals who harbored a group A Streptococcus initially and whose organism was successfully typed serologically. In this selected group it is possible to determine the effect of prophylaxis on elimination of the organisms and, in addition, to ascertain the approximate degree that the chronic carrier contributes to the observed carrier rates.

Table 1.—*Carrier Rates for Group A Streptococci Before and After Various Amounts of Benzathine Penicillin G*

Prophylaxis Units	Men, No.	% of Each Group from Which Group A Streptococci Isolated Prior to Prophylaxis	% of Each Group from Which Group A Streptococci Isolated. Weeks After Prophylaxis			
			2nd	6th	7th	9th
1,200,000	246	13	0	2	5	8
600,000	255	14	0	2	3	9
300,000	240	20	2	6	8	10
Placebo	264	22	19	23	24	22

All three doses of benzathine penicillin G appeared to be equally effective in the elimination of group A Streptococci from the throat. In from 86 to 93% of the carriers in each of the three selected treatment groups no positive cultures were obtained during the follow-up period. Only one new acquisition was definitely identified from the penicillin groups. Failure to eliminate the infecting type of Streptococcus occurred in only five individuals, two in the group receiving the largest dose of penicillin and three in the group receiving 300,000 units. The two individuals in the group receiving 600,000 units whose cultures showed an organism which could not be typed may represent failure to eliminate the Streptococcus, since other studies have demonstrated that as the carrier state progresses, most streptococci become nontypable.[5]

Table 2.—*Effect of Benzathine Penicillin G on Group A Streptococcic Carriers* During Nine Weeks After Administration*

Prophylaxis, Units	Carriers, No.	Culture After Prophylaxis			
		Negative	Positive		
			Same Type	New Type	Not Typable
1,200,000	22	19	2	1	0
600,000	28	26	0	0	2
300,000	33	30	3	0	0
Placebo	50	10	31	5	4

* Includes only those individuals whose group A streptococci isolated before prophylaxis could be classified according to serologic type.

In contrast to the groups receiving penicillin, only 20% of the carriers in the control group failed to show group A streptococci during the follow-up survey. From 70%, either the infecting type or a nontypable organism was isolated, and in 10% a new type was identified. This latter group of five individuals may represent patients with new infections. Only one such isolation was made in the 83 patients who received penicillin.

Comment

The data obtained in the present study showed that after the administration of 300,000 units of benzathine penicillin G, streptococcic infections began to occur as early as the eighth day, whereas after 600,000 and 1,200,000 units the first illnesses were observed on the 32nd and 44th days respectively. Since many in the four experimental groups were on leave during the fourth and fifth weeks, it cannot be concluded that complete protection was afforded throughout this period. In order to gather further information, data collected on all individuals who had received benzathine penicillin G at Warren Air Force Base, Wyoming, over a period of several years were analyzed. This included a previously reported mass prophylaxis survey[3] and a more recent prophylaxis study by Davis and Schmidt.[6]

In addition, benzathine penicillin G had been administered to a large number of patients with streptococcic infections who were subsequently observed for signs of a new infection.[7] These collected data are summarized in table 3. A total of 935 individuals have been given 1,200,000 units of benzathine penicillin G, and in this group the earliest time clinical illness was recognized was 44 days later. After the administration of 600,000 units, the earliest infections developed 26 days after infection, whereas with 300,000 units there was little protection after the eighth day. In these studies the benzathine penicillin G employed belonged to a single lot number. Several years later, employing a new lot of penicillin, Davis and Schmidt[6] administered 900,000 units to 2,214 men during an epidemic. In this instance, the earliest streptococcic illness occurred on the 15th day, but there appeared to be a high degree of protection for at least three weeks. Assays of the potency of several samples of this lot failed to reveal any appreciable deterioration. Samples of the penicillin used in the present study were not available for analysis.

From the present study it appears that 1,200,000 units of penicillin protected the individual for approximately six weeks. Since 900,000 units in the study by Davis and Schmidt[6] did not confer complete protection for four or five weeks, it is obvious that additional data are required before precise recommendations can be made for the management of patients who have rheumatic heart disease or who have experienced an attack of rheumatic fever. Further studies on the duration of protection against streptococcic infections provided by 1,200,000 units of benzathine penicillin G are justified, since in the management of patients with rheumatic fever an injection every six weeks would hold distinct advantage over an injection once a month. Judging from illnesses developing after administration of 1,200,000 units of penicillin, it appears that such prophylaxis affords considerable protection for at least six weeks. In the protection of rheumatic patients, however, inapparent infections may play an important role in the development of recurrences, and considerable more bacteriological, immunological, and clinical data are required for final conclusions in relation to prophylaxis in patients with rheumatic fever.

Benzathine penicillin G has also been employed for the control of epidemics of streptococcic infections among military personnel and in the treatment of streptococcic infections.[8] In both of these instances the eradication of the organism is a most important feature of therapy. In this regard, it is interesting to recall that there were no discernible differences between the three dosage regimens employed, all being about 90% effective. Why penicillin fails to eliminate the organism in some patients or carriers is not known. The importance of these persistent carriers in the initiation of new outbreaks is unknown; but in patients with streptococcic infections, failure to eliminate the Streptococcus results in attack rates of rheumatic fever comparable to those observed in untreated patients.[7]

Table 3.—*Summary of Experience at Warren Air Force Base, Wyoming, with Benzathine Penicillin G as Prophylaxis Against Streptococcic Infections*

Benzathine Penicillin G, Units	Men, No.	No Developing Illness During Weeks After Injection						
		1st	2nd	3rd	4th	5th	6th	7th
1,200,000	935	0	0	0	0	0	0	4
600,000	874	0	0	0	1	1	1	3
300,000	240	0	1	1	..	..	..	4
None	563	9	5	3	1	1	3	2
900,000*	2,214	0	0	3	5	11	17	..
None*	483	14	5	8	1	2	2	..

* Data from Davis and Schmidt.[6]

Summary

Benzathine penicillin G was administered as a single intramuscular injection in doses of 1,200,000, 600,000, and 300,000 units to 246, 255, and 240 men, respectively, during an epidemic of streptococcic pharyngitis in a military population. The duration of protection provided by each dose as determined by the development of exudative pharyngitis due to group A streptococci was six to seven weeks, four to five weeks, and one to two weeks respectively. All three dosage regimens were equally effective in eradicating streptococci from carriers. The data indicate that benzathine penicillin G is a valuable agent in the control of streptococcic disease.

This investigation was conducted under the sponsorship of the Commission on Streptococcal Diseases, Armed Forces Epidemiological Board, and was supported by the offices of the Surgeons General, departments of the Army and Air Force, Washington, D. C.

The benzathine penicillin G used in this study was supplied as Bicillin through Dr. Edward F. Roberts, Wyeth Laboratories, Inc., Philadelphia.

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8. Footnotes 3, 6, and 7.

REACTIONS FROM MULTIPLE INJECTIONS OF BENZATHINE PENICILLIN G

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A comparison was made between two dosage plans for the intramuscular administration of benzathine penicillin G as prophylaxis against rheumatic fever, nephritis, and streptococcic infections in the armed forces. One group of 1,567 men received 600,000 units every four weeks; the other group, of 1,708 men, received 900,000 units every six weeks. No reactions of the anaphylactoid type occurred, but during the six months of the study 16 men were hospitalized for urticaria, angioneurotic edema, or joint symptoms; 11 were hospitalized after the first injection, 4 after the second, and 1 after the third. Most (11) of these severer reactions occurred after the injection of 900,000 units, but the probability of reaction to subsequent doses decreased in both groups, and prolong the interval between injections did not affect the probability of a reaction. Because few streptococcic infections were seen, this study did not test the effectiveness of the prophylaxis, but it did demonstrate the safety and feasibility of administering benzathine penicillin G in this way.

The increasing number of reactions to penicillin that are being reported has focused attention on the possibility that large segments of the population may be sensitized to this antibiotic by repeated injections. This problem is particularly important in the use of penicillin for the control of streptococcic infections in patients who have had rheumatic fever and for the control of epidemics of streptococcic infections, rheumatic fever, and nephritis in the armed services. In recent years interest in penicillin preparations which are slowly absorbed from intramuscular deposits has increased. A relatively new depot preparation, benzathine penicillin G, may prove to be an ideal prophylactic agent. At present, information is meager concerning the duration of protection in relation to size of dose as well as incidence of reactions after various doses and repeated injections.

This study was designed to obtain further information concerning the prophylactic effect of repeated injections of benzathine penicillin G, in two different dosage schedules, on prevention of streptococcic disease and also on the incidence of sensi-

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tivity reactions occurring during such regimens. Since the incidence of streptococcic infections was too low for evaluation, this report will deal only with reactions.

Methods

Four Army battalions in one combat command, living in similar quarters and under nearly identical training conditions, were chosen to participate in this investigation, which lasted from Oct. 15, 1955, to April 15, 1956. These battalions were training at greater than authorized strength; therefore, additional personnel joining the organization were minimal. Two battalions totaling 1,567 men were placed on a regimen of 600,000 units of benzathine penicillin G (Bicillin) every four weeks for a total of six injections, and two battalions of 1,708 men were placed on a regimen of 900,000 units every six weeks for a total of four injections. These doses and time intervals were selected because preliminary studies showed that 600,000 units of benzathine penicillin G protected against streptococcic infections for three to four weeks and 900,000 units for somewhat longer periods.[1] Larger doses (1,200,000 units) were omitted because of the high incidence of reactions after one injection.[2]

Personnel who were not available for the first injection periods were added to the recipient group as late as the fourth period in the 600,000-unit group and third period in the 900,000-unit group. This procedure allowed a larger number of personnel to participate but decreased the percentage of participants completing the full series of injections. Penicillin was administered intramuscularly in the upper outer quadrant of the buttocks, in alternate sides at each injection.

Before the first injections were given, the purpose of the study was explained to the men, and they were encouraged to report previous reactions to penicillin. Those who stated that they had had previous reactions were individually interviewed. Men with definite histories of skin rashes or joint reactions were then removed from the study group. The soldiers receiving prophylaxis were directed to report on sick call should they develop any form of skin reaction or joint pain or swelling at any time. In addition, before each injection, all individuals were questioned regarding occurrence of reactions after the previous injection. All personnel with reactions were seen by one of two physicians who evaluated and described the condition on a reaction history form. Urticaria, angioneurotic edema, and joint pain and/or swelling were classified as probable benzathine penicillin G reactions; other skin rashes and systemic reactions (fever, headache, nausea, vomiting, and general malaise) were classified as possible reactions.

All men with probable or possible reactions were excluded from further participation in the study. In addition, those who had severe, painful, local reactions were removed from the study group for purposes of morale. Observations for reactions continued during the entire six-month period of this investigation. In order to prevent the men from receiving agents not administered as part of the investigation, all antibiotics and chemotherapeutic agents were removed from the dispensaries serving the study battalion on the day the study began.

Results

Table 1 shows the number of personnel available at each injection period in the 600,000-unit and 900,000-unit groups, respectively, and also the cumulative number of personnel removed because of a history of reactions to penicillin prior to this study and because of reactions to benzathine penicillin G during the study. The group remaining after the removal of the individuals with reactions was considered the group eligible for injections. Table 1 includes the number and percentage of those groups which actually received benzathine penicillin G at each of the injection periods. It can be seen that the participation was 92% at the first scheduled injection in October and at least as high as 75% at all later scheduled injections. The higher percentage of participants at the beginning was due primarily to starting the study at a time when the maximum number would be present. The lower percentage of participation at later periods was accounted for mainly by the absence of men from the post because of attendance at service schools, leave, or prolonged field duty.

TABLE 1.—*Number of Soldiers Eliminated from Study Because of Penicillin Reactions and Percentage of Personnel Receiving Injections at Each Period*

Scheduled Period of Injection	Total Population*	Cumulative Number Eliminated Because of Reactions: Pen†	BP‡	Total	No. Eligible for Injections§	No. Receiving Injections	Eligibles Receiving Injections, %
600,000 units every four weeks							
Oct. 14-17	1,567	43	0	43	1,524	1,386	91
Nov. 10-16	1,556	53	40	93	1,463	1,196	82
Dec. 8- 9	1,549	56	56	112	1,437	1,148	80
Jan. 4-13	1,528	78	65	143	1,385	1,049	76
Jan. 31-Feb. 8	1,529	82	76	158	1,371	1,068	78
Feb. 29-March 1	1,490	82	78	160	1,330	1,104	83
Total		82	83	165			
900,000 units every six weeks							
Oct. 14-18	1,708	75	0	75	1,633	1,508	92
Nov. 28-29	1,712	100	62	162	1,550	1,197	77
Jan. 4- 9	1,701	127	79	206	1,495	1,128	75
Feb. 7-15	1,659	132	83	215	1,444	1,178	82
Total		132	88	220			

* Slight fluctuations in total numbers were due to transfers in and out of study units

† History of penicillin reaction previous to present study; increase in numbers was due to new additions to study at each period of injection.

‡ Benzathine penicillin G reaction during this study.

§ Number eligible for injections is total population minus all individuals with penicillin reactions.

The units selected for prophylaxis contained 3,275 men of whom 214, or 6.5%, gave a history of previous reaction to penicillin and were eliminated from the study. Included among the 214 men were 170 who were excused from the initial injection and 44 who reacted after their first injections and then recalled a penicillin reaction at some previous date. Data on none of these 214 individuals are included in the benzathine penicillin G reaction tables.

Table 2 shows the cumulative probability of reactions after multiple injections of benzathine penicillin G. In this table the reactions are classified as probable or possible, 79% were considered probable and 21% possible. In the remainder of the paper the rates cited will include both classifications. It was found that the probability of reacting to the first injection was much greater than that of reacting to later injections. The same was true in both dosage schedules. In the 600,000-unit group, the probability of reacting to the first injection was 0.031, or 3.1%, and to the second was 0.011, or 1.1%. In the 900,000-unit group, the probability of reacting to the first injection was 0.039, or 3.9%, and to the second was 0.012, or 1.2%. In both groups, after the first two injections, the probability of reacting was slightly lower and remained relatively constant for the remainder of the injections. The cumulative probability of reacting to repeated injections of benzathine penicillin G was found to be 0.061 after six injections of 600,000 units and 0.058 after four injections of 900,000 units.

TABLE 2.—*Cumulative Probability of Reactions After Multiple Injections of Benzathine Penicillin G*

No. of Injections Received	No. Receiving Injections	Reactions* Probable	Reactions* Possible	Reactions* Total	Probability of Not Reacting†	Cumulative Probability of Not Reacting‡	Probability of Reacting§	Cumulative Probability of Reacting‖
600,000 units every 4 weeks								
1	1,533	38	10	48	0.969	0.969	0.031	0.031
2	1,421	11	5	16	0.989	0.958	0.011	0.042
3	1,295	4	1	5	0.996	0.954	0.004	0.046
4	1,168	9	0	9	0.992	0.946	0.008	0.054
5	974	3	0	3	0.997	0.943	0.003	0.057
6	590	2	0	2	0.996	0.939	0.004	0.061
900,000 units every 6 weeks								
1	1,646	48	17	65	0.961	0.961	0.039	0.039
2	1,431	14	3	17	0.988	0.949	0.012	0.051
3	1,169	2	0	2	0.998	0.947	0.002	0.053
4	765	4	0	4	0.995	0.942	0.005	0.058

* Probable reactions were urticaria, angioneurotic edema, and joint pain and/or swelling. Possible reactions were other skin rashes and systemic reactions (fever, headache, nausea, vomiting, and general malaise).

† Probability of not reacting = number receiving injections without reacting ÷ total number receiving injections.

‡ Cumulative probability of not reacting = cumulative probability of not reacting after one injection × probability of not reacting after next injection (Example: 0.969 × 0.989 = 0.958).

§ Probability of reacting = 1.000 — probability of not reacting.

‖ Cumulative probability of reacting = 1.000 — cumulative probability of not reacting.

There were few complaints of pain at the injection site and only five individuals were removed from the study because of moderately severe local reactions manifested by pain, swelling, and redness. No abscesses occurred and no one was hospitalized because of local reaction. These few local reactions are not included in the reaction statistics.

In general, the systemic reactions were mild. No reactions of the anaphylactoid type occurred. During the study period 16 individuals were hospitalized for urticaria, angioneurotic edema, or joint symptoms, 5 were from the group receiving injections of 600,000 units, and 11 were from the group receiving injections of 900,000 units. Eleven were hospitalized after the first injection, 4 after the second, and 1 after the third. All patients were treated with orally given tripelennemine (Pyribenzamine) citrate. In addition, one patient was given one injection of aqueous epinephrine and corticotropin (ACTH) for urticaria 14 days after he had received benzathine penicillin G. A second patient was given one injection of aqueous epinephrine and cortisone for one day for urticaria and joint swelling. Usually all symptoms and signs disappeared within two or three days after the start of treatment; however, one patient was hospitalized for 40 days because of recurring urticaria.

The interval between the time of injection and onset of reaction was not appreciably different in the two dosage schedules; therefore, the two will be considered together. Sixty-eight per cent occurred during the first week and 88% by the end of the second week. A few reactions attributed to benzathine penicillin G became apparent as late as eight weeks after the injections.

The effect of prolonging the interval between injections in both dosage schedules is demonstrated in table 3. Here the percentage of those who reacted after injections given without interruption is compared with the percentage of those who reacted after the administration of benzathine penicillin G with one or more additional intervals between in-

TABLE 3.—*Effect of Prolonging Interval Between Injections on Reaction Rates in Soldiers Receiving Benzathine Penicillin G on Two Dosage Schedules*

No. of Injections Received	Distribution of Injections*	No. of Men Receiving at Least Specified No. of Injections†	Reactors No.	Reactors %
600,000 units every four weeks				
1	Uninterrupted	1,533	48	3.1
2	Uninterrupted	1,246	14	1.1
	Interrupted	175	2	1.1
3	Uninterrupted	997	4	0.4
	Interrupted	298	1	0.3
4	Uninterrupted	785	7	0.9
	Interrupted	383	2	0.5
5	Uninterrupted	650	1	0.2
	Interrupted	324	2	0.6
6	Uninterrupted	560	2	0.4
900,000 units every six weeks				
1	Uninterrupted	1,646	65	3.9
2	Uninterrupted	1,195	16	1.3
	Interrupted	236	1	0.4
3	Uninterrupted	905	1	0.1
	Interrupted	264	1	0.4
4	Uninterrupted	765	4	0.5

* Uninterrupted means the indicated number of injections was given at the defined intervals; interrupted means that the benzathine penicillin G was given with one or more additional intervals between injections.

† Individuals classified as having received at least a specified number of injections may or may not have received more; those that did are included later in the table also.

jections. It can be seen that, in this study, the percentage of those reacting did not increase when the time between injections was increased.

Comment

Injectable benzathine penicillin G has been shown to be effective in the eradication of the group A Streptococcus from the throat and in the prevention of streptococcic infections and their complications, rheumatic fever and nephritis.[3] This drug has the advantage of being so slowly absorbed that single doses of 600,000 units or more will produce blood levels effective for the prophylaxis of streptococcic infections for two to four weeks.[1] Such an agent should be ideal for use in the control of streptococcic infections in military units or in patients with rheumatic fever, but the possibility of encountering serious sensitivity reactions, particularly if injections are repeated in the same individual, has led to caution in its widespread use. In the study here described, 11,962 intramuscular injections of benzathine penicillin G, either 600,000 or 900,000 units, were given to 3,179 Army personnel without the occurrence of a single fatal or anaphylactoid reaction. Thirty-seven per cent of those in the 600,000-unit group received all six injections and 46% of those in the 900,000-unit group received all four injections. The reaction rates did not differ significantly in the groups receiving either 600,000 or 900,000 units.

When those with reactions after each injection were excluded from the study, the probability of reacting decreased markedly after the first injection and remained low for the remainder of the injections. It is possible that the reactions after the later injections represent sensitization induced by previous injections, but the numbers were small and did not constitute a problem in this study. The longest interval between injections was four and one-half months, and prolonging the interval to this extent did not change the reaction rates. If it can be assumed that the men who gave a history of previous penicillin reactions were sensitive to benzathine penicillin G, then the data in this study indicate that most individuals (85%) sensitive to the drug can be identified by an adequate history and reactions after an initial injection.

Reported reaction rates after injections of benzathine penicillin G vary greatly. Brooks and Moe,[4] in a study of naval recruits, and Smith and his coworkers,[5] in a study in venereal disease clinics, report reaction rates of less than 1% after a single injection; on the other hand, Chamovitz and others [3c] reported a reaction rate of 5.1% in young airmen after one injection. Stollerman, Rusoff, and Hirschfeld,[6] in a study in young persons with rheumatic disease who received an average of 12 injections per patient, reported that 3.2% of patients suffered reactions. The reaction rates of approximately 3.5% after one injection and approximately 6% after four or six injections in the present report, therefore, appear high. The cause for this discrepancy is unknown. It is possible that some of the increase can be explained by the inclusion of minor or insignificant reactions or the greater likelihood of detecting reactions in the particular group in this study. It is also possible that the incidence of penicillin reactions may be higher in adults, as reported here, when compared with the lower incidence in children, as reported by Stollerman and his group.

This study was originally designed to study the efficacy of benzathine penicillin G as a prophylactic agent against streptococcic infections. The incidence of these infections was too low for evaluation; therefore, these data are not included in this report. It is of interest, however, that the incidence of gonorrheal infections was markedly reduced in the treated group; one of the 3,275 men who received benzathine penicillin G developed gonorrhea, while 192 of 13,000 untreated men in the same Army division developed this disease.

Since, in this study, most individuals sensitive to benzathine penicillin G could be detected by a history of a previous reaction to penicillin or a reaction to an initial injection, reactions, in general, were not serious, and rates did not change when the intervals between injections were prolonged, it seems proper to conclude that the routine use of repeated injections of this drug as a prophylactic agent in large groups is not only feasible but safe.

Summary

The rates and severity of reactions after repeated intramuscular injections of benzathine penicillin G were studied in four Army battalions. Two dosage regimens were used, 600,000 units every four weeks (1,567 men) and 900,000 units every six weeks (1,708 men). No fatal or anaphylactoid reactions were encountered. The cumulative probability of reacting was almost identical, 0.061 (6.1%) in the 600,000-unit group and 0.058 (5.8%) in the 900,000-unit group. When those with reactions were excluded the probability of reaction decreased markedly in both groups after the first injection, and prolonging the interval between injections did not change the reaction rates. It was concluded that the use of repeated intramuscular injections of benzathine penicillin G was a feasible and safe procedure.

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Dr. Charles H. Rammelkamp Jr. and Col. Kenneth A. Brewer assisted in planning this study, and Dr. Arthur S. Littell did the statistical analyses.

The benzathine penicillin G (Bicillin) used in this study was supplied through Dr. Edward F. Roberts of Wyeth Laboratories, Philadelphia.

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TREATMENT OF MYASTHENIA GRAVIS

PROLONGED ACTION WITH MULTIPLE-DOSE TABLETS OF NEOSTIGMINE BROMIDE AND MESTINON BROMIDE

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The anticholinesterase drugs used in treating myasthenia gravis do not have a prolonged action. The ordinary dosage forms must be taken frequently during the day, and some patients have had to be awakened repeatedly during the sleeping period for medication. New dosage forms (slow-release tablets) have therefore been developed. Neostigmine bromide in the form of slow-release tablets was tried in 85 patients, 54 of whom continued to take this form by preference at the conclusion of the experiment. Mestinon bromide in the form of slow-release tablets was similarly tried in 109 patients, 82 of whom continued to take this form at the conclusion of the experiment. The average duration of action of the slow-release Mestinon tablet was approximately six hours. There were many individual differences in the responses to these dosage-forms, and some patients preferred to take the slow-release tablets only at bedtime. Their greatest value was in eliminating the need of frequent interruptions of sleep.

The most important advance in the treatment of myasthenia gravis undoubtedly was the discovery by Dr. Mary Walker[1] in 1934 that neostigmine injections temporarily overcame the symptoms. Certainly the next step was the introduction by Everts[2] in 1935 of 15-mg. neostigmine tablets to be given orally. Both the injection and the tablet last effectively only one to three hours. In severe cases, therefore, frequent dosage is mandatory, such as every two hours day and night. This means inconvenience during the waking hours and extreme interruptions of sleep, or dangerous exacerbations of symptoms if the patient sleeps through. Prolonging the parenteral effect by the use of oil was tried in 1939 by one of us (R. S. S.),[3] but the absorption was so uncertain in every instance that either serious overdosage or the reverse occurred. The death of one patient in a cholinergic crisis while on maintenance therapy with the oil preparation caused complete abandonment of this technique of administration.

Mestinon bromide, an analogue of neostigmine which is the dimethylcarbamate of 3-hydroxy-1-methylpyridinium bromide, was made available for the treatment of myasthenia gravis in 1953. It is now available in scored 60-mg. tablets, each of which is roughly equivalent to 15 mg. of neostig-

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mine bromide. Mestinon has less gastrointestinal side-effects than neostigmine and in some patients has a longer action. Many patients, however, must take frequent doses during the day, and some must be awakened for doses during the sleeping period.

In recent years new dosage forms of various drugs have been constructed to permit slow release. Since a patient with myasthenia gravis requires frequent doses during the daytime hours, it was suggested to the manufacturers that some form of prolonged-action tablet be prepared. Two sizes of neostigmine bromide and Mestinon bromide tablets were made available to us. In the case of neostigmine, the equivalent of three regular 15-mg. tablets, or a total dose of 45 mg., was contained in the full-strength tablet. (This tablet should not be confused with an enteric-coated or delayed-action type that passes through the stomach, its coating insoluble in the acid medium. Such tablets lose the protection coat in the alkaline small intestine, releasing the constituents as rapidly as an ordinary compressed tablet in the stomach. Their main function is to avoid contact of the contents with the most sensitive gastric mucosa, as in the case of some patients with aspirin. They may also, if the coating is thick enough, delay final dissolution, so that the absorption comes later than that of an ordinary capsule or tablet. In 1938 one of us [R. S. S.][3] tried enteric-coated neostigmine without any advantage over the usual tablet.) The other tablet of neostigmine was half-strength, containing three doses of 7.5 mg. each or a total dose of 22.5 mg. In the case of Mestinon bromide, there was a full-strength tablet, containing three regular doses of 60 mg. or a total of 180 mg., and a half-strength tablet, containing three doses of 30 mg. or a total dose of 90 mg.

Table 1.—*Results with Prolonged-Action Neostigmine Bromide Tablets in Eighty-Five Patients*

Clinic	Max. per Day	Min. per Day	Av. per Day	Better than Reg. Med.	Equal	Not So Good	Over-dosage	Total Patients
Boston	12	1	3	23	3	8	3	34
Indianapolis ..	26	1	8	19	6	7	4	33
New York	16	1	5	12	2	4	2	18
Total	26	1	5	54	11	19	9	85

The information we desired to obtain was whether such tablets could provide effective control of myasthenic symptoms over extended periods of time, such as during the entire sleeping hours at night, whether in a given patient they were effective day after day, and whether the total contents approximated the equivalent amounts of drug taken in ordinary tablets. We also sought data as to whether such forms gave smoother absorption than repeated regular doses and whether overdosages or undermedication were complicating factors.

Patients were fully instructed as to the nature of the tablets and their purpose, including the obvious fact that such tablets could not be cut in two. The first trial was to substitute in equivalent amounts the prolonged-action or slow-release tablets for regular ones so as to see in each case how long the effective control lasted. The use of these tablets before retiring at night to avoid the need of waking for a dose of medicine was considered their most important value.

Results

Prolonged Action with Neostigmine Bromide.—In the three clinics in 1956 we administered the slow-release tablets of neostigmine bromide to a total of 85 patients (34 at Massachusetts General Hospital, Boston, 18 at Mount Sinai Hospital, New York, and 33 at Indiana University Medical Center, Indianapolis). Of the 85 patients, 54 are still finding the tablets of such value that they wish to continue with this therapy—a favorable percentage of 65.

The duration of effectiveness of the three-dose type varied from a minimum of 3 hours to a maximum of 12 hours, with an average effectiveness of 6 to 7 hours. In some patients the total amount of drug taken in this manner exceeded that in regular tablets by 33% without evidence of overdosage or better control, suggesting that some of the drug in such cases may escape absorption. In three patients with symptoms of dysphagia, the increased size of the tablet bothered the patients to such an extent that administration was discontinued. In all others this was not a problem.

In some patients the half-strength tablet was adequate for bedtime dosage (the full-strength one causing diarrhea and cramps in the early morning). Other patients preferred regular tablets during the day to give greater flexibility and prolonged-action tablets during the night. In some the prolonged-action tablets worked effectively during the day but were no better than regular tablets, affording only the convenience of fewer doses as an advantage. A few patients felt that the benefit of smoother, more even absorption was sufficiently present so that they preferred to remain on the slow-release neostigmine therapy.

The composite details of the results of administering prolonged-action neostigmine bromide tablets to 85 patients are shown in table 1. In this group of patients, variability in absorption, once satisfactory dosage was established, did not occur. Severe toxic or accumulative effects were not encountered. In no patient was significant failure of absorption encountered (tablets were not passed per rectum).

Prolonged-Action with Mestinon Bromide.—One hundred nine patients, both private and clinic, at Mount Sinai and Massachusetts General hospitals and at Indiana University Medical Center, were transferred to therapy with prolonged-action Mestinon tablets. We were careful to choose 83 patients who had previously been controlled on regular Mestinon bromide tablets, since we did not wish to becloud the clinical results of the new dosage form by using patients who had previously shown a preference for neostigmine (Prostigmin) bromide or ambenonium (Mytelase) chloride. Twenty-six patients who had previously been taking Mestinon bromide in combination with other drugs were also transferred to therapy with long-acting Mestinon bromide; this therapy included the administration of prolonged-action Mestinon bromide tablets in combination with prolonged-action neostigmine bromide (10 patients), with regular neostigmine (6), with ambenonium and regular neostigmine (2), and with ambenonium (8).

The prolonged-action Mestinon bromide tablets were withdrawn in 22 of the 83 patients selected. Sixty-one patients are still on maintenance therapy with prolonged-action Mestinon. These patients have been followed for a minimum period of 1 month and a maximum period of 12 months. The administration of the prolonged-action Mestinon tablets was discontinued in the case of the 22 patients for the following reasons: 1. Ten patients experienced excessive stimulation of the intestinal tract, with other muscarinic side-reactions. These toxic reactions were identical with those of overmedication with regular Mestinon tablets. 2. Seven patients could find no advantage in the prolonged-action Mestinon tablets over the regular tablets. They had been content and well adjusted on the ordinary tablets. 3. Three patients needed odd dosages during the day, only obtainable by taking a portion of the scored tablet; i. e., they needed three-fourths or one and three-fourths or only one-fourth of the regular Mestinon tablet to be well regulated. These patients were not content with the dosage available at present in the prolonged-action tablet. 4. One patient found that the prolonged-action Mestinon tablet was too large for her to swallow and stated that she nearly choked several times on these tablets. She had a peculiar anxiety reaction to large tablets, which is part of her personality complex. 5. One patient, a 32-year-old woman at the New England Medical Center, Boston, was totally unable to absorb any medication from the prolonged-action Mestinon tablets, passing them with her stool unchanged, and they were, therefore, not effective. Subsequently her thymus was removed, and she went into a partial remission. Then she went through the same procedure a second time when prolonged-action Mestinon tablets were administered, these tablets remaining unabsorbed. Her condition can now be effectively regulated by the daily administration of 12 prolonged-action neostigmine tablets, each containing 45 mg.

In the manufacture of the prolonged-action Mestinon bromide tablet, the core is made of an inert material into which the Mestinon is absorbed. This core may appear in the feces, and the patient may fear that the medication has not been assimilated. Assays of these cores recovered from the feces reveal that most, if not all, of the Mestinon has been utilized.

A few patients were satisfied with the action of the regular Mestinon tablets during the daytime hours and preferred taking the prolonged-action tablets only at bedtime. Occasionally, because of the prolonged action, it is not possible to space proper dosages over the 24 hours of the day, so that one dose of regular Mestinon bromide may be required in the late afternoon or the early evening to fill in the hiatus between the awakening and the bedtime doses. Twenty of the 61 patients who are on maintenance therapy with Mestinon bromide use combinations of regular and prolonged-action tablets. Of the 10 patients who have been taking combinations of prolonged-action Mestinon and prolonged-action neostigmine, 7 have continued to do so. Five patients are taking the prolonged-action Mestinon with regular neostigmine, and two patients are taking prolonged-action Mestinon with ambenonium and regular neostigmine. Seven patients take prolonged-action Mestinon with ambenonium.

Dosage: Patients were transferred from therapy with regular Mestinon bromide by replacing full-strength regular tablets containing doses of 60 mg. each with a 180-mg. prolonged-action tablet. In the case of one-half regular Mestinon tablets, the 90-mg. prolonged-action tablet was substituted. At first the patients were observed for a number of hours, and ergograms were made before and after edrophonium (Tensilon) tests at hourly intervals. It was thus determined and borne out by clinical evaluation that the prolonged-action Mestinon bromide tablets seemed to be effective from two and one-fourth to two and three-fourths times as long as the regular Mestinon tablets. In general, the slow-release Mestinon bromide tablets can be expected to last two and one-half times as long as the ordinary tablets.

The largest dosage of prolonged-action Mestinon bromide prescribed was 6 tablets every six hours for a total of 24 tablets per day, which would be equivalent to 72 ordinary Mestinon tablets. The smallest dosage was one tablet morning and night. The variation in dosage with prolonged-action Mestinon bromide tablets is the same as with regular Mestinon. Increases and decreases in dosage for a patient occurred during the course of treatment. The condition of one patient could be completely controlled, as far as myasthenic symptoms were concerned, by the administration of two prolonged-action Mestinon tablets per day, as compared with identical control of symptoms by the administration of three prolonged-action neostigmine tablets. Once a patient has been adjusted to this form of prolonged medication, changes do not seem to occur in the difference of absorption rates. However, in some patients who were completely controlled on a six-hour basis the interval eventually had to be reduced to four hours.

Apparently there is no difficulty, as far as the age of the patient is concerned, in absorbing the material, and both the severe and the mild cases were equally benefited. We have had no reactions whatsoever from the prolonged-action Mestinon tablets, except that, when the dosage has been too strong, overdosage symptoms have occurred. There is no question that in suitable patients a prolonged-action Mestinon tablet of the type described gives a prolonged medication effect superior to the ordinary tablet and is, therefore, of great benefit to some patients. The duration of the action varies with the severity of the disease, the shortest being 4 hours, the average approximately 6 hours, and the longest 12 hours. Of 109 patients transferred to therapy with prolonged-action tablets of Mestinon bromide, 82 have continued their use and prefer them because of the decreased frequency of medication and smoothness of action (table 2). Thirty-two of the 82 patients have found need to combine the prolonged-action Mestinon tablets with other cholinergic drugs.

TABLE 2.—*Results with Prolonged-Action Mestinon Bromide Tablets in 109 Patients*

Clinic	Max. per Day	Min. per Day	Av. per Day	Better than Reg. Med.	Equal	Not So Good	Over-dosage	Total Patients
New York	24	1	9	32	3	2	4	46
Boston	10	1	10	24	3	2	5	34
Indianapolis ..	20	1	12	26	1	1	1	29
Total	24	1	10	82	7	5	10	109

Summary

Prolonged-action or slow-release tablets of neostigmine bromide, containing three regular doses of 15 mg. each, and a half-strength form, containing three doses of 7.5 mg. each, have been tried in the treatment of 85 patients with myasthenia gravis. Prolonged-action or slow-release tablets of Mestinon bromide, containing three regular doses of 60 mg. each, and a half-strength form, containing three doses of 30 mg. each, were tried in treating 109 patients with myasthenia gravis. In the case of the neostigmine bromide tablets, 54 of the 85 patients have found them superior to their regular medication and are still taking them. In the case of the Mestinon bromide tablets, 82 of the 109 patients still continue to take these tablets. The greatest value of this type of medication is in eliminating the need of doses during the sleeping hours.

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The prolonged-action Mestinon bromide tablets used in this study were supplied through Dr. T. C. Fleming of Hoffmann-La Roche, Inc., Nutley, N. J. The original prolonged-action neostigmine bromide tablets were supplied by A. H. Robins Co., Inc., Richmond, Va., and a subsequent form of this material was supplied by Hoffmann-La Roche, Inc.

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The Osteoarthritic Joint.—In 1948 we were surprised to note that the temperature inside the osteoarthritic joint was not normal or slightly subnormal as we had supposed, but rather was increased. The normal knee joint temperature is about 33 degrees C., the active rheumatoid arthritic knee temperature is about 37 degrees C., and the osteoarthritic knee about 35.5 degrees C. An asymptomatic knee, even showing extensive degeneration on x-ray, usually had a normal joint temperature. After weight-bearing exercise the temperature of an osteoarthritic knee rose much more than the normal or rheumatoid arthritic joint, often to 40 degrees or 41 degrees C. Further, the rate of cooling of such a joint on rest after exercise was much slower than in either the normal or rheumatoid joint, often requiring several hours before the control temperature was reached. From these observations we have concluded that a chronic low-grade inflammation or congestion does exist in the symptomatic or active osteoarthritic joint, possibly a result of frequent irritation of the synovium by the excessive heat of friction on use. The slower rate of cooling would also indicate a decrease of blood flow through the membrane. Since the osteoarthritic experiences his joint pain mainly during and after prolonged use, we may have a logical explanation of his pain at last. A marked congestion of the synovium resulting from the excessive heat of friction, with the delayed dispersion of this heat, could account for the stiffness of the joint after periods of rest. More definitive proof is needed, however, before this theory is completely accepted.—J. L. Hollander, M.D., The Diagnosis and Management of Osteoarthritis, *Cincinnati Journal of Medicine,* November, 1956.

FREQUENCY OF DEFECTS IN INFANTS WHOSE MOTHERS HAD RUBELLA DURING PREGNANCY

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The authors report the results of actual examination of infants born to mothers in whom rubella during pregnancy was diagnosed by a physician. Of 104 women who had rubella during the first trimester, 28 delivered normal infants. Congenital defects were found in 3 infants; there were 3 stillbirths, 12 other fetal deaths, 48 therapeutic abortions, and 10 cases lost from study. The incidence of congenital deformities among the live-born babies of women with rubella during the first trimester of pregnancy was 9.7%. No controls were used, so that a comparison with women who had no rubella could not be made. Rubella appears to increase the likelihood of malformations, but the high rates of incidence set by early authors are exaggerated. The recommendation of therapeutic abortion because of rubella should not become routine, but should take into account all known factors in the situation, such as the age and fertility of the mother. Until more information is obtained on relative risks, physicians owe it to their patients and to society to advise parents to expose their susceptible young daughters to rubella.

The association between rubella in a pregnant woman and the birth of a malformed infant, which was first indicated by Gregg,[1] has been stressed so strongly and advertised so widely that many physicians and pregnant women assume that one is necessarily followed by the other. As a result, therapeutic abortions are advised by physicians and demanded by pregnant women. In New York City, from 1949 to 1955, 45 therapeutic abortions were performed in 104 women who had rubella during the first three months of pregnancy. In 1943 Swan and associates[2] published the results of an investigation of congenitally malformed infants. The investigation was retrospective in design. It started by observing infants with malformations and then questioning their mothers on the occurrence of rubella during their pregnancies. The authors concluded that, if a woman had rubella during the first two months of pregnancy, the chance of giving birth to a congenitally defective child was 100% and, if she contracted rubella during the third month, the chance was about 50%. Numerous case reports soon appeared, and several retrospective studies were initiated. In an investigation conducted by Miller[3] for the American Academy of Pediatrics, out of 132 infants whose mothers had rubella during pregnancy, 86% had congenital defects. Wesselhoeft,[4] in 1949, summarized the reports in the literature, most of them retrospective in nature. Of 780 infants whose mothers had rubella in pregnancy, 656 or 80% were malformed. Such astounding percentages have been accepted by many physicians as authentic rates of incidence, and pregnant women have been urged to have therapeutic abortions performed if they had rubella.

A little thought will show the inaccuracy of the cited percentages. In the retrospective studies cited, the start was made with the defective child, and the path was retraced to discover what happened to the mother during her pregnancy. Frequently the diagnosis of rubella was inaccurate because it was not made by a physician. Often it was unreliable because the mother had to remember an event which occurred a year or more before. The feeling of guilt that possessed a woman for having given birth to a deformed child undoubtedly motivated her sometimes to remember some rash or other eruption that she had early in pregnancy and identify it as rubella. The main objection to this type of study, however, is statistical. No consideration is given to the children who were born normal and who therefore escaped from the study. If 100 pregnant women give birth to 100 infants, of whom 10 are deformed, the incidence is 10%. If the inquiry starts with the 10 deformed infants and works back, the finding will be that all their mothers had rubella during pregnancy. One can thoughtlessly consider this a 100% incidence.

A few prospective studies have been reported. These are summarized by Ingalls and Purshottam,[5] who point out that the criteria for including them were based on certain principles. These were (1) selection of cases before the children's births, (2) diagnosis of rubella by a physician, and (3) record of the outcome of conception. In a paper presented at the annual meeting of the American Public Health Association in 1956, Ingalls added a few more cases from the literature and some from personal reports. He thus obtained a record of 63 births to women who had rubella during the first trimester of pregnancy. Five of these births were stillbirths, and in nine cases there were congenital deformities.

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mester, an incidence of 12%. All these studies suffer from the fact that no controls were used. Fox and Bortin's case is included, although there is doubt about the deformity. The infant was cyanotic at birth and is said to have had hydrocephalus at birth "which receded spontaneously, the child being perfectly normal at present."

Comment

The uncommon occurrence of rubella in young adults makes it difficult to collect a large enough series of cases in pregnant women, unless an epidemic of the disease occurs. Thus, in New York City 125 cases of rubella in pregnant women were found in 1955, when there was an epidemic of the disease, whereas only 108 cases were gathered in the six preceding years. To obtain sufficient data, investigation should be undertaken by several groups cooperatively, preferably in communities where rubella is a reportable disease. Such an investigation should start with the pregnant woman with rubella, diagnosed by a physician. Supervision should be continued through pregnancy until term or miscarriage. If a live-born infant results, its condition should be determined; it should be followed for about a year, and an evaluation then made by a physician. Proper controls should be included in order to obtain comparative rates.

From the results of the present study and other reported prospective studies one can conclude that the incidences of congenital malformations reported by early workers are fantastically high and incorrect. The recommendation of therapeutic abortion based on those rates is not medically justified. While an association between rubella early in pregnancy and the occurrence of congenital deformities in the offspring appears to exist, the degree of association has not been determined. Present data indicate a rate of approximately 12% of total births. This is a far cry from rates of 90 to 100% reported in retrospective studies. A controlled prospective study is still needed to obtain comparative rates and to fill other gaps in our knowledge.

It is true that it matters little to the individual woman whether the over-all rate of deformity is great or small if her child is affected. However, there is quite a difference between informing her that she has a 90% chance of giving birth to a normal baby and telling her that there are 90 chances out of 100 that her baby will be deformed. If the woman is young, has a child or two, and does not find it difficult to conceive, she may not want to take the extra risk, even if it is not large. On the other hand, an older primipara, particularly one who has found it difficult to conceive, will be willing to take the risk. At any rate it is scientifically unsound and medically unjustified to state that a risk is higher than the facts warrant.

Until more information is obtained on relative risks, physicians owe it to their patients and to society to advise parents to expose their susceptible young daughters to cases of rubella. This is a mild disease in childhood and rarely causes complications. It confers a permanent immunity and later will obviate the anxiety of pregnant women who may be exposed to it.

Summary and Conclusions

A prospective study of pregnant women with rubella was carried out in New York City from 1949 to 1955. Of 104 women who had rubella during the first trimester of pregnancy, 27% gave birth to normal infants, 3% to congenitally malformed babies, 3% to stillbirths, and 12% to other nonviable fetuses. Therapeutic abortions were performed on 46%, and the cases of 10% were lost from the study.

The incidence of congenital deformities among th live-born babies of women with rubella during th first trimester of pregnancy was 9.7%. In a simila study elsewhere in New York City of pregnant wome who did not have rubella, reported recently, the incidence of congenital malformations was 7%. If onl defects of the brain, eyes, ears, and heart are considered in the latter study, the incidence was 1.9%.

Large-scale prospective studies with controls ar needed to ascertain comparative rates of incidenc The available data indicate a rate of about 12% o total births. The fantastically high rates set by earl authors were based on retrospective studies of malformed infants, which did not account for babies wh were born normal and who therefore escaped from th study, and hence are incorrect. Blanket advocacy o therapeutic abortion in pregnant women who develo rubella during the early months of pregnancy is medically unjustified. Exposure of susceptible young girl to cases of rubella is medically justified and is a soun public-health procedure.

125 Worth St. (13) (Dr. Greenberg).

Miss Marcia Zimet, Statistician, New York City Departmen of Health, gave statistical advice and supervised the search o birth certificates and statistical computations.

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CLINICAL NOTES

HYDRAULIC DEVICE FOR REMOTE CONTROL OF INJECTION DURING CAROTID ANGIOGRAPHY

Joseph A. Epstein, M.D.
and
Bernard S. Epstein, M.D., New Hyde Park, N. Y.

We have long been concerned with the problem of exposure to irradiation in the performance of cerebral angiography. The lead rubber drapes suggested for protection have proved cumbersome in our experience.

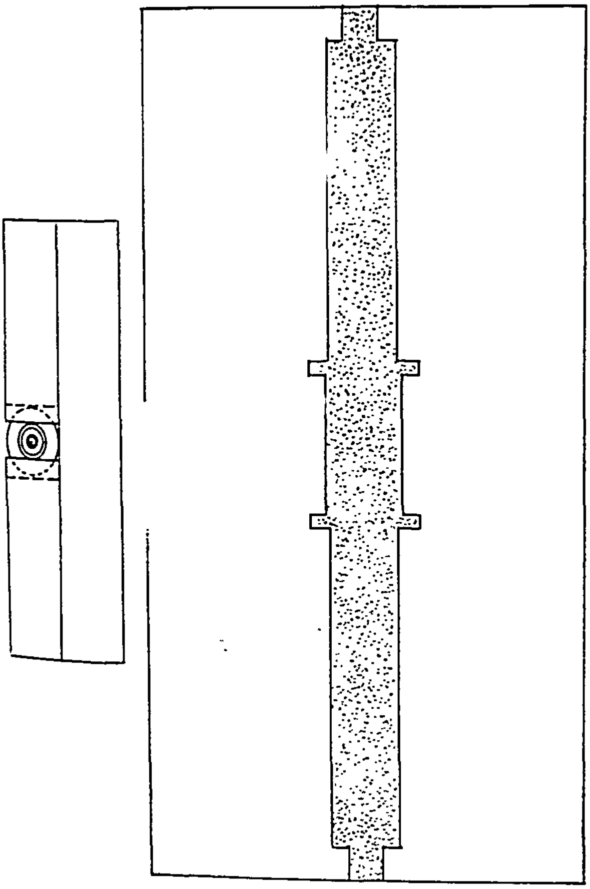

Fig. 1.—Scale drawing of apparatus.

The amount of radiation scatter encountered with careful centering and the use of small cones still is hazardous. Automatic injection devices are limited by the handicap, incurred by losing the desired "feel" of the injection and the expense and complexity of such apparatus.

Up to the present time we have used a combination of careful coning, lead rubber aprons on the operator, and a hasty retreat from the site of the procedure immediately after injecting the contrast medium. This has been fairly successful because the chance of disengaging the Cournand needle is lessened by attaching the syringe to the needle with a 12-in. length of flexible sterile plastic tubing (Venotubes, Abbott Laboratories).

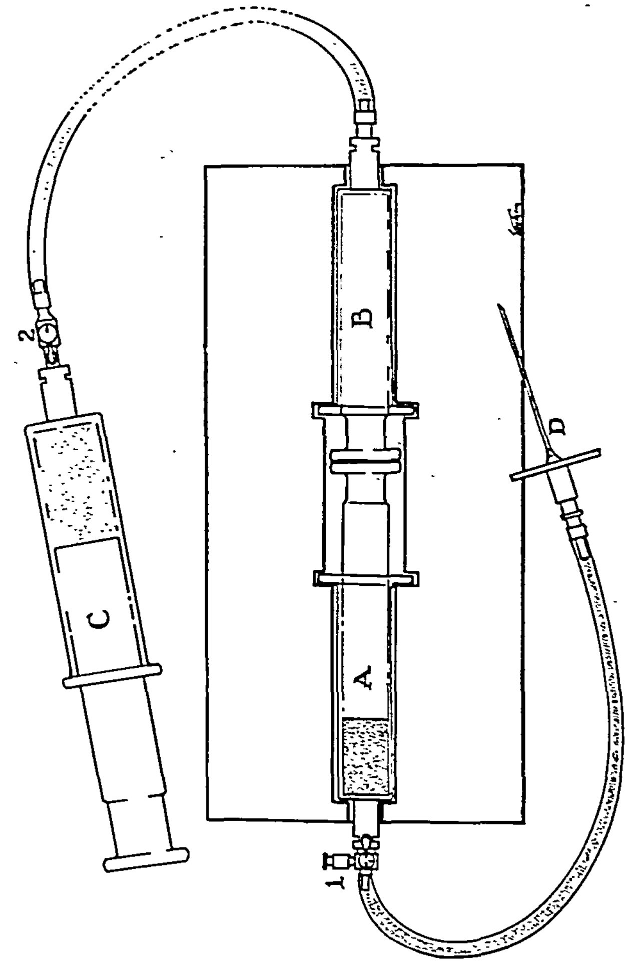

Fig. 2.—Apparatus assembled with syringes in place, ready for use.

From the Department of Surgery, Division of Neurological Surgery, and the Department of Radiology, the Long Island Jewish Hospital.

It occurred to us that a hydraulic device which would retain for the operator the "feel" of the injection and permit the injection to be made from the safe recesses of the control booth would advance our safety. If this were constructed with easily available material at nominal cost, and would work repeatedly and adequately, a contribution worth mentioning might result. We believe that the device described here meets these qualifications.

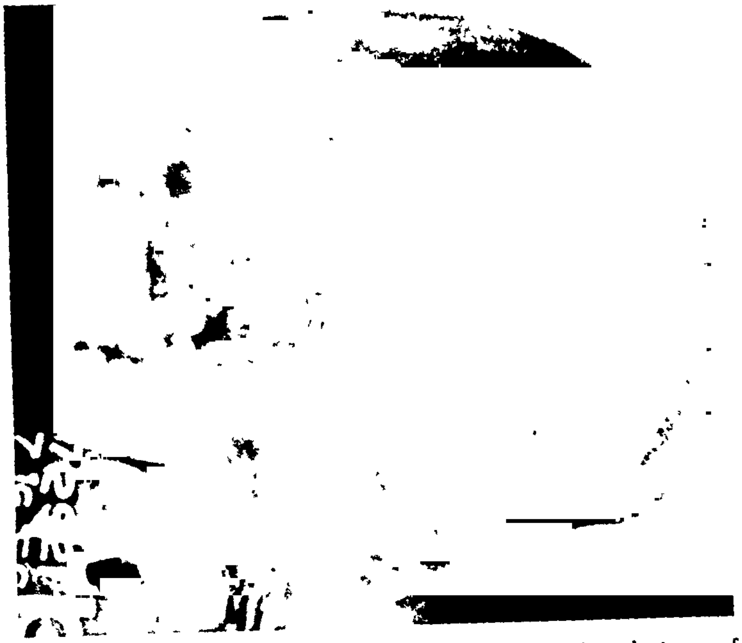

Fig. 3.—Cerebral angiogram using conventional technique of direct injection through short length of plastic tubing. (Cerebral angiogram of same patient made four months later using present apparatus gave same picture.)

The apparatus is constructed from a length of 1-in. soft wood, upon which two additional 1-in. widths are screwed to permit the placement of two 20-cc. Luer-Lok syringes. These are kept in position by cutting out a pair of parallel grooves into which the upper lips of the syringes fit. The distance between these grooves is so set that with one syringe empty and the other containing 8 cc. of contrast medium the heels of both pistons are in apposition (fig. 1). The tip of the syringe containing the contrast medium is connected by means of a short length of sterile plastic tubing to the Cournand needle after this has been successfully introduced and threaded into the common carotid artery. The impeller syringe is connected by means of a 12-ft. length of stiff plastic tubing to a 20-cc. syringe.

This tubing was obtained from a pet shop which carries equipment for aquariums. For hydraulic fluid we use light mineral oil, filling the system so as to include 15 cc. in the actuating 20-cc. syringe. This serves to compensate for any stretch in the plastic hose during the injection (fig. 2).

When the plunger on the 20-cc. master syringe in the operator's hand is pushed forcibly, the fluid enters the impeller syringe, ejecting its piston. This pushes on the piston of the syringe containing the contrast medium, ejecting the contrast medium through the Cournand needle with as much force as if the injection had been made with the syringe immediately attached (fig. 3).

Once assembled, with the tubing wired to the adaptors, the hydraulic system can be kept full constantly. The syringe with the contrast medium can be replaced after each use. This is suggested inasmuch as repeated use of syringes with diatrizoate (Hypaque) or iodopyracet (Diodrast) concentrated is undesirable because of the possibility of the pistons sticking. The entire apparatus is kept in readiness and, after the needle has been introduced, is fixed to the patient's chest by means of a strap encircling the body. Between injections the plastic tube connecting the syringe with contrast medium to the indwelling needle can be clamped off, or an infusion of saline solution may be introduced through a two-way stopcock. If desired, the Cournand needle may be disconnected and a stylet introduced to keep it patent.

We have used this apparatus repeatedly with satisfaction. It provides a safe, reliable, and inexpensive method for the rapid injection of contrast material, enabling the operator to control the procedure from a distance. The apparatus can be used equally well for angiocardiography in infants, and we are constructing a larger one for angiocardiography and aortography in adults.

270-05 76th Ave. (Dr. B. S. Epstein).

Radiochemistry and Atomic Clocks.—Radioactive dating has been one of the radiochemist's principal contributions to geology and cosmology. The formation of lead by the radioactive decay of uranium-238, uranium-235, and thorium-232, in principle, affords a threefold opportunity for the determination of the time elapsed since the most recent crystallization of a mineral. The scale is in terms of thousands of millions of years, the average lifetime of these isotopes. In addition to these three isotopes, two others are of increasing importance—potassium-40, which forms argon-40 in about 10 percent of its disintegrations and has a half-life of 1250 million years; and rubidium-87 which forms strontium-87, again on a time scale of thousands of millions of years. With these five atomic clocks, it is possible to establish the age of the earth with some reliability, and it now appears that the earth and the meteorites probably all are about 5000 million years old. This remarkable result is one of the cornerstones of modern cosmology and geophysics. These atomic clocks are almost entirely contributions of radiochemists. Other possibilities may exist, but radioactive dating is firmly established and is already a cornerstone of geophysics.—W. F. Libby, Radiochemistry, *Scientific Monthly*, September, 1956.

PROLONGED TELEVISION VIEWING AS CAUSE OF VENOUS AND ARTERIAL THROMBOSIS IN LEGS

Meyer Naide, M.D., Philadelphia

It has been recognized that prolonged sitting in one position while driving an automobile for long distances may result in venous thrombosis in the legs. The occurrence of thrombosis of major vessels in the legs of three patients who had been watching television for prolonged periods while sitting in awkward positions drew attention to another cause for the development of thrombophlebitis and arterial occlusion. Television lends itself peculiarly to prolonged sitting during which the legs may not be moved much or at all, since the viewer must face the screen to watch the program, in contrast to listening to the radio where the listener may move about at will. In two of the patients described below venous thrombosis occurred in the legs, with pulmonary embolism. In the third patient thrombosis of the femoral artery occurred as the result of prolonged sitting while the patient was watching television with her legs tucked under her, which was her favorite way of sitting during television programs.

Report of Cases

Case 1.–A 79-year-old physician was seen on Sept. 10, 1956, with a history of pain and swelling of the left leg which had been present for one week. The symptoms had appeared after he had been sitting still for one and one-half hours watching television. The left leg had been in an awkward position with pressure against the popliteal space during this period. Severe pain appeared behind the left knee immediately after the prolonged sitting. When he was seen there was edema of the left leg, and the left calf was 2 cm. greater in circumference than the right. The left popliteal space was very tender and so was the calf. Homans' sign was negative. A diagnosis was made of acute thrombophlebitis of the left leg. He was hospitalized and placed on therapy with heparin and bishydroxycoumarin (Dicumarol). The heparin was withdrawn three days after admission, but therapy with bishydroxycoumarin was maintained. Three days after stopping the heparin therapy, the patient developed sudden pain in the right side of the chest. Two days after the development of chest pain there was x-ray evidence of pleural effusion and thickening, with increased density at the right phrenocardiac angle. The diagnosis was that of a pulmonary infarct. Heparin was given in addition to bishydroxycoumarin with gradual clearing of signs in the chest and subsidence of the symptoms in the legs. He has done well since his discharge in October, 1956, with no postphlebitic symptoms.

Case 2.–A 68-year-old man was seen on Oct. 1, 1956, with a history that he had watched television four weeks previously while sitting with one leg thrown over the side of a sofa chair and had fallen asleep. He awoke about an hour later with discomfort in the right leg and development of swelling and increased pain in the leg the following day. He had been treated with bed rest and penicillin for four weeks before being seen. On examination, the right calf was tender and was 2 cm. greater in circumference than the left. Homans' sign was negative. The right foot was warmer than the left. There was no pallor, cyanosis, or rubor of the extremities. Blood pressure was 140/190 mm. Hg. Rales were heard at both bases. Heart and abdomen appeared normal. A diagnosis was made of thrombophlebitis of the right leg with findings suggestive of pulmonary emboli. He was hospitalized and placed on heparin and bishydroxycoumarin therapy. X-ray of the chest disclosed evidence of pulmonary infarction at the right base. His symptoms subsided gradually with anticoagulant therapy, and he was discharged at the end of three weeks in the hospital with slight residual edema.

Case 3.–A 39-year-old woman came in on April 21, 1952, with a history that on April 15th she had been sitting with the left leg tucked under her off and on for at least two hours while watching television. When the patient stood, the foot then the leg seemed numb, dead, white, and cold. She massaged the leg, but soreness and numbness as well as pallor persisted. She stated that her favorite position while watching television was to have her legs tucked under her. On examination, no pulses were palpable in the left leg, even in the femoral artery. Oscillometric readings were almost zero in the left leg and lower thigh and were normal in the right leg. The left foot and leg were distinctly colder than the right. Color changes on elevating the legs disclosed rapid blanching of the left foot. On dependency the left foot flushed slowly, with final discoloration of the first toe. Blood pressure was 132/184 mm. Hg. Heart, lungs, and abdomen appeared normal. This patient's condition gradually improved with vasodilator drugs, although she still has intermittent claudication on walking about a block and a half. The left femoral pulse is still absent.

Comment

While watching television programs a viewer may sit for hours at a time in a relatively static position, perhaps moving only occasionally. Homans [1] has emphasized the frequency of thrombosis of the deep leg veins as the result of prolonged sitting, particularly in automobiles. Tall men are peculiarly susceptible to venous thrombosis after long automobile trips.[2] Simpson [3] reported 21 sudden deaths from pulmonary embolism in persons in or leaving air-raid shelters in World War II. The cause was found to be venous thrombosis in legs, resulting from long periods of sitting on chairs or benches with the edges compressing the veins. Wright [4] has pointed out the importance of moving frequently and removing girdles and other clothing that bind in the fold of the groin during travel that requires prolonged sitting.

From the Department of Medicine, Woman's Medical College of Pennsylvania, and the Department of Medicine, Albert Einstein Medical Center.

One need not belabor the point that stasis is a contributory factor in the development of venous thrombosis. Television viewing, which requires that the individual face the screen for long periods, may create a favorable situation for the development of thrombosis of veins and also of arteries, particularly if the legs are not moved frequently or if there is compression of the popliteal vein as the result of awkward sitting with pressure on the poplilteal space. Television viewers should get up and move about at least once an hour in addition to moving the legs frequently. Girdles and other tight garments should be removed before prolonged television viewing. It is of possible significance that the two patients who developed venous thrombosis were elderly.

Summary

Three patients developed major thrombosis in the legs, two in the veins, with pulmonary embolism, and one in the femoral artery, following prolonged sitting in awkward positions while viewing television programs. Prolonged television viewing without moving the legs, particularly by elderly individuals, may cause sufficient stasis to produce venous and arterial thrombosis. Television viewers should get up and move about at least once an hour in addition to moving the legs frequently. Girdles and other tight garments should be removed before prolonged television viewing.

2034 Spruce St. (3).

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IMPLANTATION METASTASIS AFTER NEEDLE BIOPSY OF LIVER TUMOR

Samuel Zelman, M.D., Topeka, Kan.

Implantation of tumor cells in the track of a needle biopsy of the liver apparently occurs rarely. It was observed in one reported instance after needle aspiration of a malignant hepatoma.[1] Another instance involving hepatoma was mentioned in a discussion.[2] It has not been encountered in Schiff's extensive experience.[3] The case reported below is the only such in an experience which included 41 aspirated malignant tumors, 34 of them from the liver.

Report of a Case

A 59-year-old male had an abdominoperineal resection of an adenocarcinoma of the rectum in July, 1955, and was observed regularly thereafter for recurrence. Beginning in December, 1955, he had indigestion, gradual weight loss, liver enlargement, and a gradually rising serum alkaline phosphatase level. Needle aspiration biopsy of the liver through an anterior approach in July, 1956, revealed metastatic adenocarcinoma. In December, 1956, a metastatic nodule was found in the abdominal skin at the site of needle entry. When surgically excised, this nodule measured 1 cm. in diameter and was accompanied by a second smaller nodule found directly beneath it subfascially. On histological examination, both nodules were found to consist of adenocarcinoma. The patient died in January, 1957, when extensive metastases were found at autopsy.

Comment

This is the third known instance of implantation metastasis after aspiration of liver tumor and the first involving metastatic liver tumor. The rarity of such an occurrence, as well as the generally hopeless prognosis of malignant tumors in the liver, should relieve concern regarding the possible implantation of metastases along the track of needle biopsy of the liver.

Dr. Phyllis J. Burdon of the Medical Service gave permission to report the case.

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From the Medical Service, Winter Veterans Administration Hospital.

SPECIAL ARTICLE

SOCIAL SECURITY FOR PHYSICIANS

1. THE OLD AGE, SURVIVORS AND DISABILITY INSURANCE PROGRAM (OASDI)

The United States Social Security Act, passed in 1935, contains several different programs under the general heading of "Social Security." We are concerned here only with that portion of the act originally known as the Federal Old Age Benefit System, later the Old Age and Survivors Insurance program, and now, after many amendments, the Old Age, Survivors and Disability Insurance Program. The original objective sought was twofold in character: (1) to remove older workers from the labor force and (2) to provide a federal basic minimum retirement benefit to such workers.

The act originally contemplated and provided for a close relationship between the amount of Social Security taxes paid and the benefits received by retired workers. The plan was relatively simple. Only retired workers over 65 were to receive benefits. A contributory system was established based on special taxes paid by workers and employers. The proceeds were invested in government securities which were maintained in a special fund.

Since 1935 the program has been changed in many fundamental respects:

1. Coverage has been broadened so that substantially the entire working population is now covered, plus their dependents and survivors. Only self-employed physicians, certain government employees, and a few other small groups are excluded.
2. Existing benefits have been increased, new benefits and beneficiaries added, and Social Security tax schedules changed. The original objective of income maintenance for retired workers, later for their survivors and dependents, was broadened significantly in 1954 and 1956 when special income maintenance provisions were included for the disabled.

In broad outline the act, as presently constituted, includes the following provisions which are of particular interest to self-employed physicians.

Social Security Taxes

The self-employed pay Social Security taxes annually on the first $4,200 of income. The tax is paid at the time of filing the individual income tax return. It is paid regardless of age and whether or not the individual is receiving Social Security benefits.

The following table shows current Social Security tax rates and presently scheduled increases for the self-employed:

Year	%	Tax (%×$4,200)
1957-1959	$3\frac{3}{8}$	$141.75
1960-1964	$4\frac{1}{8}$	173.25
1965-1969	$4\frac{7}{8}$	204.75
1970-1974	$5\frac{5}{8}$	236.25
1975-	$6\frac{3}{8}$	267.75

The taxes computed in this table will, of course, be appreciably higher if the tax rate or the base earnings taxed are increased by any future Congress. Several bills now in Congress include increased taxes and higher base earnings subject to tax.

Eligibility for Benefits

Old Age Retirement Benefit.—You are eligible for retirement benefits at age 65 if you are (*a*) "fully insured," (*b*) have retired, and (*c*) have applied for payments. You are "fully insured" at retirement age if you have a "quarter of coverage" for each two calendar quarters after 1950. A "quarter of coverage" corresponds to a calendar quarter, and is considered a "covered" quarter if self-employed earnings during that year are at least $400. To reach "fully insured" status one must have at least six quarters of coverage. The attainment of 40 quarters of coverage entitles one to a "fully insured" status for life. A 1954 provision with respect to disability permits a covered worker to omit quarters during which his earnings record was "frozen" due to disability.

Eligibility for a retirement benefit also requires satisfaction of a work test. Between ages 65 and 72 you may not earn more than $1,200 in a year and receive benefit payments for all 12 months of the year (at age 72 the work test provision does not apply). In general one month's benefit is lost for each $80 or fraction thereof of earnings over $1,200 in a year. However, the monthly benefit may be paid no matter how much the $1,200 maximum is exceeded for any month in which the self-employed person does not render "substantial services in self-employment." The Social Security Administration has defined "substantial services" as actively engaging in the operation of one's trade or business. Decisions are made on the facts in each case. Income from savings, investments, pensions, and insurance is not included under these provisions.

The present maximum monthly benefit payable to the retired worker is $108.50.

Retirement Payments to the Self-employed Worker's Wife.—The wife of a retired "fully insured" worker is eligible for retirement payments if she is age 62 or over, or has a dependent child who is under 18 or disabled. The wife at 65 receives one-half of the monthly payment to the self-employed retired worker. The applicable amount, for example, for a 65-year-old wife whose husband was receiving maximum retirement benefits would be $54.30; the total for the couple would be $162.80. Similarly, a wife of a retired self-employed worker receiving maximum benefits who had a dependent child under 18 or disabled would receive the same amount ($54.30 monthly) regardless of her age. A retired worker's wife between ages 62 and 65 receives a reduced benefit. A wife below the age of 62 without a dependent child under the age of 18 or disabled child receives no benefit.

Survivors' Benefits.—Monthly payments are made to a widow age 62 or over of a self-employed worker who was "fully insured" at death. Such a widow receives a maximum benefit of $81.40. A widow of any age (or a dependent divorced wife) with a dependent child under 18 or disabled of a self-employed worker who at death was covered under the act (not necessarily "fully" insured) is also eligible for a survivor payment. The maximum amount for a widow with one child is $162.80 and for a widow with two children, $200. Payments cease when the children reach 18. The widow again receives a benefit when she reaches 62.

Lump Sum Payment at Death.—The widow of a self-employed covered worker receives a maximum lump sum death payment of $255 for burial expenses.

Disability Benefits.—A self-employed worker at age 50 adjudged to be disabled as defined in the law who is "fully insured" and who has been covered for at least 20 quarters in the 40 calendar quarters before the onset of the disability is eligible to receive the retirement benefit that he would have received if he had reached the age of 65 ($108.50 maximum). No retirement benefit is provided for wives or dependent children under the existing program.

Disability under the act is defined as "any medically determinable physical or mental impairment which can be expected to be either of indefinite duration or result in death, and which renders an individual unable to engage in any substantial gainful activity."

Constitutionality

In 1937 the constitutionality of the Federal Old Age Benefit program was argued before the Supreme Court. In general the affirmative decision of the act's constitutionality was based on the argument by the government that this program was not "insurance" but a public welfare program based on taxation and the payment of benefits by the government on a statutory and noncontractual basis. The Supreme Court construed the program to be within the spirit of the general welfare clause of the Constitution on the basis of this argument. Notwithstanding the clear position of the Court that the Federal Old Age Benefit program was not insurance, Congress in 1939 changed the name of the program from Federal Old Age Benefit to Old Age and Survivors Insurance. The word "insurance" has been used routinely since that time to describe the program.

Social Security Trust Fund

Social Security taxes cannot by law be earmarked. All taxes are transmitted to the Treasury of the United States Government. The fund however is credited by the Treasury with receipts equivalent to the Social Security taxes received. The fiscal procedure is for the Treasury to transmit to the fund special bonds designated as "public debt obligations for purchase by the Trust Fund." Interest on these public debt obligations is applied in the same way. The fund represents the surplus of Social Security taxes over the benefits paid out plus the accrued interest less administrative expenses. Its value is represented by the special bonds issued by the Treasury which become a part of the public debt.

The Social Security taxes, plus the accrued interest, projected through 1975 are designed to insure revenues adequate to meet the obligations to eligible beneficiaries. In years when Social Security tax revenues are less than that year's benefit payments the trustees of the reserve fund exchange the special non-negotiable bonds for negotiable bonds from the United States Treasury and sell those bonds on the open market. No attempt is made to build up a reserve fund actuarially equal to the total projected obligation now estimated at approximately 250 billion dollars.

The principal purpose of the reserve fund as it was established in 1935 is to insure the continuation of contributory, special taxes from workers and employers, the proceeds of which, together with accrued interest, are designed to underwrite the total cost of the program. It is the contention of the proponents of the reserve fund mechansim that the contributory system could not have been established without a reserve fund identified as such, into which excess tax payments were placed as earmarked special bonds. The reserve fund is said to insure that the general revenues of the government will never be used to pay Social Security benefits. In 1950, to underscore this objective of the reserve fund the Congress voted that general revenue shall not be used in this program.

Many students of Social Security and government fiscal management contend that the reserve fund is a fiction that serves no useful purpose. They contend that the fund consists only of earmarked government obligations and that the interest applied to the account is in effect a double taxation on the people. They point to the repeated evidence of misunderstanding concerning the nature of the fund as shown by congressional attempts to add new expensive programs based on the false notion that idle cash is available in the fund. Furthermore, these opponents contend the fund promotes the fiction of absolute "rights" to benefits based on part ownership of the fund. The beneficiaries of the fund in a true sense, they say, are anonymous and current taxpayers have no statutory or other right to any portion of the bonds in the trust fund.

Given a Social Security program, it can be said that a reserve fund provides certain practical administrative advantages but at the same time promotes dangerously false concepts of the nature of the program.

Future Program

This Congress will consider numerous amendments to OASDI which increase benefits and taxes, and introduce fundamentally new concepts. To the medical profession the most important are those which for the first time authorize hospital or medical care in addition to cash benefits. A specific proposal that will undoubtedly receive wide support is the reimbursement of hospitals by the fund for hospitalization of eligible retired Social Security beneficiaries. It is also being proposed that the present cash payment to eligible disabled beneficiaries at age 50 be made regardless of age and—of special interest to medicine—that rehabilitation of the disabled person be financed through OASDI funds.

COUNCIL ON DRUGS

Report to the Council

The Council has authorized publication of the following report.

H. D. Kautz, M.D., *Secretary.*

The Registry, established under the direction of the Subcommittee on Blood Dyscrasias of the Committee on Research, has received 257 case reports from 74 cooperating physicians in which a dyscrasia was suspected as having been caused by drugs or chemical substances. A review of these reports reveals that 10 cases were apparently associated with the use of the new drug promazine hydrochloride. Since the Registry is intended as a system for the alerting of physicians, it was concluded that the possible association of these cases with the use of this drug was sufficiently suggestive to warrant bringing this fact to the attention of the medical profession.

Norman De Nosaquo, M.D., *Secretary,*
Committee on Research.

BLOOD DYSCRASIAS ASSOCIATED WITH PROMAZINE HYDROCHLORIDE THERAPY

A review of the reports received by the Registry since July, 1956, revealed 10 cases of blood dyscrasias apparently associated with promazine (Sparine) hydrochloride therapy. A search of the English-language medical literature to the date of the preparation of this statement has uncovered two case reports of granulocytopenia associated with promazine hydrochloride therapy, one of which is among those reported to the Registry. Wyeth Laboratories has been most cooperative and has supplied an additional record of 8 cases not previously reported to the Registry, bringing the total to 18 cases in which promazine therapy was suspected as being associated with a case of blood dyscrasia. It should be pointed out that in seven instances the patients received other drugs such as chlorpromazine (Thorazine) hydrochloride. Although all of the cases of blood dyscrasias associated with the use of promazine hydrochloride probably have not been reported, it has been suggested that the rate of incidence of a dyscrasia is relatively low.

Although depression of granulocytes was prominent in every case reported, the bone marrow studies in some cases indicated a depression of other cellular elements as well. Of the 18 known cases, we have information that 4 ended fatally. In cases that were identified early, cessation of use of the drug and institution of appropriate measures were usually followed by fairly prompt recovery. Physicians who prescribe promazine hydrochloride should instruct attendants, nurses, and patients to discontinue use of the drug and to report immediately if there is any sudden occurrence of symptoms such as sore throat, fever, or malaise. These instructions must be stressed. The interim blood cell counts alone cannot be relied upon because the condition could develop suddenly between routine examinations.

Wyeth Laboratories has included a forceful warning and has placed it prominently in the leaflet available to the medical profession. The firm should be commended for its diligence and willingness to cooperate with the subcommittee in its effort to bring this matter to the attention of physicians. Since the drug may possess potential for some harm, the subcommittee suggests that physicians limit its use to those conditions in which such use is warranted and avoid its use in the treatment of trivial or minor complaints.

Report to the Council

The Council has authorized publication of the following report.

H. D. Kautz, M.D., *Secretary.*

The following recommendations on first-aid measures for poisoning have been adopted by the Committee on Toxicology. These recommendations are made in response to numerous requests to the American Medical Association for general instructions for poisoning emergencies. They are intended for use in educating the public in what to do when poisoning occurs.

Bernard E. Conley, Ph.D., *Secretary,*
Committee on Toxicology.

RECOMMENDATIONS OF COMMITTEE ON TOXICOLOGY ON FIRST-AID MEASURES FOR POISONING

Emergency Telephone Numbers:
PHYSICIAN ....FIRE DEPT. ....
HOSPITAL .... (resuscitator)
PHARMACIST ....POLICE ....
RESCUE SQUADS ....

The aim of first-aid measures is to help prevent absorption of the poison. SPEED is essential. First-aid measures must be started at once. If possible, one person should begin treatment while another calls a physician. When this is not possible, the nature of the poison will determine whether to call a physician first or begin first-aid measures and then notify a physician. Save the poison container and material itself if any remains. If the poison is not known, save a sample of the vomitus.

Measures To Be Taken Before Arrival of Physician

I. *Swallowed Poisons*

Many products used in and around the home, although not labeled "Poison," may be dangerous if taken internally. For example, some medications which are beneficial when used correctly may endanger life if used improperly or in excessive amounts.

In all cases, *except those indicated below,* REMOVE POISON FROM PATIENT'S STOMACH IMMEDIATELY by inducing vomiting. This can not be overemphasized, for it is the essence of the treatment and is often a lifesaving procedure. Prevent chilling by wrapping patient in blankets if necessary. Do not give alcohol in any form.

A. *Do Not Induce Vomiting If:*
   1. Patient is in coma or unconscious.
   2. Patient is in convulsions.
   3. Patient has swallowed petroleum products (i. e., kerosene, gasoline, lighter fluid).
   4. Patient has swallowed a corrosive poison (symptoms: severe pain, burning sensation in mouth and throat, vomiting).
      CALL PHYSICIAN IMMEDIATELY
      (a) Acid and acid-like corrosives: sodium acid sulfate (toilet bowl cleaners), acetic acid (glacial), sulfuric acid, nitric acid, oxalic acid, hydrofluoric acid (rust removers), iodine, silver nitrate (styptic pencil).
      (b) Alkali corrosives: sodium hydroxide—lye (drain cleaners), sodium carbonate (washing soda), ammonia water, sodium hypochlorite (household bleach).

If the patient can swallow after ingesting a *corrosive poison,* the following substances (and amounts) may be given:

For acids: milk, water, or milk of magnesia (1 tablespoon to 1 cup of water).
For alkalis: milk, water, any fruit juice, or vinegar.
For patient 1-5 years old—1 to 2 cups.
For patient 5 years and older—up to 1 quart.

B. Induce Vomiting When Non-corrosive Substances Have Been Swallowed:
   1. Give milk or water (for patient 1-5 years old—1 to 2 cups; for patient over 5 years—up to 1 quart).

   2. Induce vomiting by placing the blunt end of a spoon or your finger at the back of the patient's throat, or by use of this emetic—2 tablespoons of salt in a glass of warm water.

When retching and vomiting begin, place patient face down with head lower than hips. This prevents vomitus from entering the lungs and causing further damage.

II. *Inhaled Poisons*
   1. Carry patient (do not let him walk) to fresh air immediately.
   2. Open all doors and windows.
   3. Loosen all tight clothing.
   4. Apply artificial respiration if breathing has stopped or is irregular.
   5. Prevent chilling (wrap patient in blankets).
   6. Keep patient as quiet as possible.
   7. If patient is convulsing, keep him in bed in a semidark room; avoid jarring or noise.
   8. Do not give alcohol in any form.

III. *Skin Contamination*
   1. Drench skin with water (shower, hose, faucet).
   2. Apply stream of water on skin while removing clothing.
   3. Cleanse skin thoroughly with water; rapidity in washing is most important in reducing extent of injury.

IV. *Eye Contamination*
   1. Hold eyelids open, wash eyes with gentle stream of running water *immediately*. Delay of few seconds greatly increases extent of injury.
   2. Continue washing until physician arrives.
   3. *Do not use chemicals*; they may increase extent of injury.

V. *Injected Poisons* (scorpion and snake bites):
   1. Make patient lie down as soon as possible.
   2. Do not give alcohol in any form.
   3. Apply tourniquet above injection site (e. g., between arm or leg and heart). The pulse in vessels below the tourniquet should not disappear, nor should the tourniquet produce a throbbing sensation. Tourniquet should be loosened for 1 minute every 15 minutes.
   4. Apply ice-pack to the site of the bite.
   5. Carry patient to physician or hospital; DO NOT LET HIM WALK.

VI. *Chemical Burns*
   1. Wash with large quantities of running water (except those caused by phosphorus).
   2. Immediately cover with loosely applied clean cloth.
   3. Avoid use of ointments, greases, powders, and other drugs in first-aid treatment of burns.
   4. Treat shock by keeping patient flat, keeping him warm, and reassuring him until arrival of physician.

Measures to Prevent Poisoning Accidents

A. Keep all drugs, poisonous substances, and household chemicals out of the reach of children.
B. Do not store nonedible products on shelves used for storing food.
C. Keep all poisonous substances in their original containers; do not transfer to unlabeled containers.
D. When medicines are discarded, destroy them. Do not throw them where they might be reached by children or pets.
E. When giving flavored and/or brightly colored medicine to children, *always* refer to it as medicine—*never* as candy.
F. Do not take or give medicine in the dark.
G. *READ LABELS* before using chemical products.

CHEMICAL LABORATORY

The Chemical Laboratory has authorized publication of the following statement.

Walter Wolman, Ph.D., *Director.*

Monographs of tests and assays for new and nonofficial drugs adopted by the Chemical Laboratory of the American Medical Association represent an expression of opinion as to what might constitute adequate tests and assays to serve as a reference guide to those interested in the identity and quality of a new and nonofficial drug.

Completed monographs are published in the journal *Drug Standards* for those interested in the details of the procedures. Monographs on the following drugs have appeared in the July-August, 1957, issue of that journal. The cooperation of the listed pharmaceutical firms that furnished samples and data is acknowledged.

Cyclizine	(Burroughs Wellcome & Co., Inc.)
Cyclizine hydrochloride	(Burroughs Wellcome & Co., Inc.)
Cyclizine lactate	(Burroughs Wellcome & Co., Inc.)
Meclizine hydrochloride	(Pfizer Laboratories)
Mephentermine	(Wyeth Laboratories)
Nylidrin hydrochloride	(Arlington-Funk Laboratories)

be answered by unanimous agreement of all health groups rather than incidental opinions, and it is up to local medical leaders to coordinate such information before, not after, announcement is made to the public.

The second Special Committee on Influenza report attempts to prevent duplication of health efforts, as well as to prevent conflicting information from reaching the public. In disseminating health information, experience has proved that successful results are more easily achieved when the audience respects the reliability of the source. Integrated knowledge can not only prevent confusion but, moreover, can reduce morbidity.

THE PHILADELPHIA MEETING

The forthcoming meeting of the American Medical Association in Philadelphia will provide an opportunity for all members to learn first hand what their Association is doing on their behalf. It also offers an opportunity for others to observe how the medical profession through organized efforts is serving the public. Reports covering all phases of Association activity will be presented to the House of Delegates, and any member is welcome to attend the meetings of the House. In fact, all members are urged to attend.

Philadelphia as a convention city has much to offer. For those interested in sightseeing, for those with an interest in medical schools and hospitals, and for those with an eye for history, this city is well known. But, in addition, there will be today's modern medical concepts as revealed by leaders in all branches of medical life. And also there will be the occasion to review what the American Medical Association has done during 1957 and what are some of its plans for the future.

Time and time again people are heard to criticize something of which they have little personal knowledge. Or they are heard to complain about an action taken by their medical society but on questioning admit they have made no attempt to express their views to the society. The purpose of organizing into societies is to permit an exchange of ideas and to encourage cooperatively that which is good. All physicians should be members of their county, state, and national medical associations to share and benefit from a program for the exchanging of ideas. And they should not hesitate to express their views no matter how divergent they may seem to be. The views may not be in accordance with the expressed wishes of the majority, but at least they will have been aired and shared. But if a dissenting doctor does not even attend the meetings of his society, he cannot expect to exert an influential voice. Nor should his views be expected to weigh heavily with others if he seems to be so little interested in his colleagues that he does not wish to associate with them at medical meetings.

There are so many problems confronting medicine today that any meeting is certain to provide discussion on some topic of interest for all members of the profession regardless of their field of activity. Medical education, retirement plans, malpractice, medical care for the public and for the armed forces, civil defense crises, new treatments and diagnostic measures, visual aids, corporate practice of medicine, medical ethics, and other subjects too numerous to mention are discussed and discussed again and again at medical meetings. And they are now a part of the everyday life of the doctor, whether he be practitioner, administrator, teacher, or researcher, as they have never been previously. The doctor as an individual must be informed on what is new for him and his patient. And for his own good and for his patients' welfare he must know what problems are facing his profession as a whole. With such information he can better meet his obligations. Without it he may find himself in some embarrassing situations from time to time. The Philadelphia meeting is designed to focus attention on such areas of interest and to permit the Association as an organization to report to its members. Now it is up to the members to learn first hand some of the things they are receiving for their dues.

SOCIAL SECURITY FOR PHYSICIANS

The House of Delegates of the American Medical Association at the June, 1957, meeting reaffirmed its long-standing opposition to the compulsory coverage of physicians under the Old Age and Survivors Insurance provisions of the Social Security Act. The House also recommended a stepped-up informational program which would explain to every Association member the reasons underlying the policy on this issue.

To help carry out that directive, THE JOURNAL this week begins publication of a series of three articles on "Social Security for Physicians," which will be appearing in the Special Article section. This week's article, "The Old Age, Survivors and Disability Insurance Program (OASDI)," is on page 683. Part 2 of the series, entitled "Position of the Medical Profession Concerning the Coverage of Physicians Under the Social Security Act," will be in the October 19 issue. The October 26 issue will carry part 3, called "Survivorship Benefits—the Bait."

Although there are differences of opinion within the profession on this question, all evidence to date indicates that a majority of physicians agree with the Association's policy. However, during the past year or so the picture has been somewhat confused by the vigorous drum-beating efforts of the leftist Physicians Forum. It is hoped, therefore, that this series of articles—and subsequent material to be published by THE JOURNAL—will help clarify the issue and enable physicians to reach a clear-cut decision based on facts rather than propaganda.

SPECIAL COMMITTEE ON INFLUENZA

ASIAN INFLUENZA—A SPECIAL REPORT TO MEDICAL SOCIETIES

The following report, prepared by a subcommittee consisting of Drs. Charles W. Steele, Chairman, Lewiston, Maine; David Henry Poer, Atlanta, Ga.; and Roscoe L. Sensenich, South Bend, is presented for the guidance of the medical profession by the A. M. A. Special Committee on Influenza and has been authorized for publication in THE JOURNAL.

FRANK W. BARTON, *Secretary.*

The success of any program designed to minimize the medical and health problems arising from an Asian influenza epidemic, should it materialize, will depend on the leadership and extent of participation of the medical profession. The public looks to the medical profession for this leadership in these emergency situations and American medicine wants a sound medical plan and an effective organization to meet the medical aspects of any epidemic. Experience has shown the infecting virus of Asian influenza to be highly contagious, accompanied by a rapid onset and high incidence or attack rate. For these reasons, the A. M. A. Special Committee on Influenza points to the fact that the ability of the medical profession to discharge its responsibilities in the event of an epidemic of this nature will depend largely on how promptly they have taken steps to plan ahead.

To assist medical societies in organizing the health resources of the community to meet the emergency requirements of an Asian influenza epidemic, the Committee feels that a review of some of the factors to be considered, together with suggested operational guides, might be helpful. In considering the problem in broad terms, the twofold objective of this report is (1) to assist in the formulation of medical and health plans that can be put into operation in the event an epidemic occurs and (2) to assist state and local medical societies in cooperation with official health agencies to plan a program that will achieve the highest level of vaccination possible, in accord with local priority plans, with the amount of vaccine available.

Many of the state and county medical societies have already prepared excellent plans and are otherwise actively engaged with preparedness programs. The Committee suggests that an exchange of programs and plans among states, as well as between constituent medical societies, might be of practical value in the coordination of activities, as well as in uniformity of action in special phases of the program.

For the past two months, special articles have been published in THE JOURNAL on Asian influenza, and these articles will be continued. Promotional materials and guides are available through the U. S. Public Health Service to assist state and community groups in developing vaccination programs and operational plans.

Because the local health department is the link between the private physician and the state-federal-international reporting system, it is essential that this communication be immediate in order to provide rapid epidemiologic investigation, including laboratory confirmation, where influenza of any type is the tentative diagnosis. Equally as important as the supplying of information to the local health officer is the reciprocal opportunity of receiving up-to-the-minute data from the epidemic intelligence service, which is part of the public health make-up. All public health officials receive regular reports from state and federal sources, and these reports include the locations of individual cases, outbreaks, and most important the exact diagnosis, if and whenever confirmed. A unique part of this service is the notifying of local health officials whenever persons, usually returning from overseas and known to have been exposed to Asian influenza, are returning to their community.

The Committee recommends that each state, county, and local medical society give consideration to:

1. The formation of plans for complete mobilization of all health resources at community level to cope with the impact of influenza epidemics on normal professional services and health facilities. In general, it will be an augmentation of existing services to meet the anticipated epidemic.

2. An estimate of anticipated morbidity, duration of the epidemic, and number of persons ill at the same time, using available experiences and indexes.

3. A forecast of the number of patients that could be treated at home and those requiring hospitalization.

4. A plan for expanded professional care through the utilization of all medical personnel, regardless of type of practice. Action to make full use of hospi-

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The Special Committee on Influenza consists of Drs. Harold C. Lueth, Chairman, James Z. Appel, Cortez F. Enloe Jr., Carroll P. Hungate, Hugh H. Hussey Jr., Max L. Lichter, David Henry Poer, Roscoe L. Sensenich, and Charles W. Steele.

tal facilities, likewise, should be explored, such as curtailment of elective surgery, diagnostic studies, etc.

5. A determination of effective mobilization plans through the use of surveys of hospital resources, physicians, nurses, and other allied medical personnel, and other means.

6. An assurance of the full utilization of other community services and facilities, such as home nursing care, homemakers service, first aid and care to the sick, to supplement the care needed for all persons in the home and to relieve the demand on hospitals.

7. The possible use of FCDA emergency supplies and equipment and other civil defense planning.

8. A system for the dissemination of epidemiologic information to local physicians available from the Public Health Service on the total national situation and also on a state-by-state basis. A program of epidemic reports by counties to the state and, in turn, reports to the Public Health Service that could be made available to physicians would be ideal.

9. A means for the utilization of a diagnostic laboratory system for the collection of specimens of nose and throat washings and blood samplings to establish the epidemiology of the disease. Technical information on securing, preparing, and forwarding of specimens to the laboratory should be disseminated through state health department channels to insure reliable tests and uniformity of laboratory data that would indicate the presence or spread of the disease. This phase of the program is of tremendous value early in an epidemic. Once an epidemic has started, further laboratory tests are no longer essential.

10. The closest coordination of state and local medical programs with public health agencies and state and local health officials is of utmost importance. There should also be effective cooperation between the health and medical groups and all other related community activity.

11. The admission to hospitals of those persons with influenza with complications or those that constitute a special medical problem or risk. The Committee feels that maximum reliance should be placed upon home care of uncomplicated influenza cases.

12. An informational and educational program to acquaint the public with factual information as to what to do and what to expect. The public should be reassured that there is no cause for alarm concerning an influenza outbreak in view of the fact the illness is of short duration, it is generally mild and with few complications, and it has a very low mortality rate. Emphasis should be made concerning the close cooperation among national, state, and local health and medical groups in the formulation and operational plans to cope with the problem.

Local groups working together can evolve an effective action program, operationally and informationally. The Committee feels that the possible magnitude of the problem warrants serious attention of local medical societies well in advance of any epidemic outbreak. Too little or too late could be disastrous, even though it is recognized that some portions of the program may never be used. Local medical societies must give the type of leadership in this matter that the public expects. Even if the Asian influenza epidemic should never strike, the public and the profession would gain by this type of organization: first, in health education; second, in drawing people in the health groups together to form an effective action group which could meet special emergency health problems; and, third, it could serve as an actual working experience in medical disaster situations, due to either natural or war conditions.

Realizing that some misunderstanding has probably resulted in the widespread dissemination of information with reference to the vaccine program, the Committee takes this opportunity to briefly review the achievements in the manufacture, production, and distribution of Asian influenza vaccine.

The progress which has been made in the development of a vaccine containing the Asian strain has been significant and noteworthy, if not phenomenal. The first strains were provided to the manufacturers on May 22; the first vaccine was released for general use on Aug. 12, and each succeeding week since that date increasing lots of the vaccine have become steadily available. It is anticipated that some time in October a maximum weekly production rate of 5 to 7 million cubic centimeters will be reached by the six manufacturers who have been licensed to produce the vaccine.

According to Public Health Service reports, a production goal of 85 million cubic centimeters by January, 1958, is the present estimate of supply potential. As of Oct. 1, a total of 13,502,947 cubic centimeters of the vaccine had been released for civilian and military use. Of this amount, the military departments received 4,015,700 cubic centimeters, and it is anticipated that by the end of October most of the members of the armed forces will have received the first of two scheduled inoculations. The remaining 9,487,247 cubic centimeters has been released through the usual commercial drug channels for civilian use. When maximum production goals are reached in October, it is estimated that approximately 20 million cubic centimeters or more per month will be available for distribution.

A polyvalent preparation containing an Asian and other strains of virus, no doubt, would be the ideal vaccine; however, the monovalent Asian strain virus has been accepted in order to facilitate production and to provide as large a volume as possible for immunization. Present requirements call for an antigenic virus mass of 200 CCA (chick-cell-egg agglutination) units per cubic centimeter. Past experience, according to the Public Health Service, has indicated that a single injection of influenza vaccine is about 70% effective. The actual effectiveness of the Asian influenza vaccine cannot, of course, be established as yet. Protection develops in 10 to 14 days and lasts approximately one year.

The Public Health Service has undertaken a vigorous campaign to urge maximum public use of the vaccine just as rapidly as supplies become available. Dr. Leroy E. Burney, Surgeon General, U. S. Public Health Service, noted, "there will not be enough time, of course, to produce and administer sufficient vaccine to immunize a majority of the population before the influenza season. However, the vaccine is the only known preventive and we want to make the best use of it we can."

The Public Health Service, in cooperation with the American Medical Association, is encouraging a nationwide voluntary program of vaccination against the prevalent strain of influenza. The Public Health Service will not request federal funds for the purchase or administration of the vaccine, except for its own legal beneficiaries. Community resources, both public and private, should be encouraged to provide for persons who are unable to pay for such protection.

At the suggestion of the Public Health Service, a voluntary interstate allocation system for the distribution of the vaccine has been worked out by the manufacturers to assure an equitable availability of vaccine supplies throughout all parts of the country. The voluntary system is patterned along the following lines:

1. Each state would be entitled to shipments of a percentage of vaccine produced by each manufacturer equal to the percentage which that state's population bears to the total population of the United States.
2. Out of each week's vaccine production, manufacturers would establish for each state a quota of vaccine equal to the state's percentage entitlement.
3. Vaccine manufacturers would limit their sale of vaccine in each state to the quota established for that state.
4. Manufacturers would report weekly to the Public Health Service the net amount of vaccine released for sale that week and, on a state-by-state basis, the amount shipped into each state in terms of amounts shipped to public agencies and to other purchasers.
5. The Public Health Service would maintain data from the states regarding the adequacy of available vaccine supplies under this system and would recommend modifications in the quotas if it appeared that supplies were exceeding demand in some states.

Dr. Burney reported that under this system the Public Health Service would not contemplate any allocation between public agency purchasers and commercial sales.

Whenever a vaccine is in short supply and the demand is great, it automatically creates problems of allocation and priority. How each state's share of its vaccine will be distributed is another aspect of the problem. The State and Territorial Health Officers, in a meeting on Aug. 28, recommended that priority be given to:

1. Those individuals whose services are necessary to maintain the health of the community.
2. Those individuals necessary to maintain other basic community services.
3. Persons with tuberculosis and others who in the opinion of the physician constitute a special medical risk.

In endorsing this priority recommendation, the A.M.A. Special Committee on Influenza suggests that state and local medical societies should consider the application of these recommendations on the basis of local conditions and situations. Local county medical societies should take the initiative in the organization of local advisory committees, composed of physicians, health officials, and representatives of other health groups, voluntary agencies, and civic organizations. Such local advisory committees would depend upon the local organizational plan adopted for their membership. They should be established to determine and recommend how the distribution should be made and in what order groups should receive it. Additional groups and categories should be added to the priority listing as the quantity of the vaccine is increased. It is highly desirable for individual physicians to adhere to locally established priorities under free and voluntary cooperative arrangements. Local advisory committees should publicize among the medical profession the priority system adopted and the basis for such determination. Industrial concerns, schools, and other special groups will also be guided by the recommendations established by local priorities. At the same time, an intensive public educational program should be instituted concerning the state vaccine allocation and priority program. This alone should relieve some of the pressure and clamor from individuals to their physicians for the vaccine.

In suggesting factors for consideration in the formulation of operational plans in the event an epidemic occurs, the Committee realizes that each state and each community will have to develop its own program within the framework of local practices, conditions, and resources and the particular difficulties confronting the community. The Committee visualizes the problem as basically a local one which can be met only by a carefully designed program tailored to local requirements with local health and medical groups working together in a team approach.

COUNCIL ON MEDICAL SERVICE

THE SENIOR CITIZEN AND HIS COMMUNITY

Frederick C. Swartz, M.D., Lansing, Mich.

This is the eighth of a series of papers on various aspects of aging. Each paper has been prepared for the Committee on Aging by an authority in the field. When completed, the series will be published in booklet form.

In every community, whether large or small, there is an increasing number of people being looked upon as senior citizens. A generation or two ago this group was not so large. The small community odd jobs and farming activities took care of many of those who could work. The family philosophy of being responsible for their own took care of a large part of the remainder.

As a "problem" the oldster did not present the urgency that is thought to be there today. In a community which throbs along at the relentless rate set by an atomic age, there is little sympathy or feeling for one who allegedly cannot keep the pace. We who have conquered the atom have not solved the challenge of being able to live one with the other. We are adept at recognizing differences that permit us to set groups apart and at discussing their special needs as problems; but what about those similarities which make us all brothers under the skin whether we are young or old, white or colored, religious or nonreligious.

The very title of the paper implies an ideal that the Committee on Aging might well strive to solve. The term "senior," besides indicating advanced age, carries with it the connotation of being advanced in accomplishments, dignity, rank, and office as well. It will be the responsibility of the aged of the future to possess these attributes. A citizen is a member of a free community and, in return for his loyalty and allegiance, is accorded protection of life, liberty, and property as well as the right to vote and speak regarding the affairs of government. The comunity then, for our purpose, is a number of citizens with a common organization and/or interest who live adjacently.

The real content of this paper, however, has to do with the people who are over 65 years of age and their relationship to the community in which they live. It does not take too much of a study to bring out the fact that far too many of the senior citizens have but one characteristic in common, and that is their age. The advanced accomplishments, dignity, rank, and office seem to have been lost somewhere. The interest in environment, motive for living, and the sense of belonging seem to be hardly worth the effort. Neglect of personal appearance, chronic complaining, and failure to keep mentally alert limit the horizons of personal association. Any exaggeration of these defects changes sympathy and understanding to neglect and disgust and provides motives for the segregation of aged in homes and institutions.

Allegiance and loyalty are still expected of the senior citizen by the community. The protection of life, liberty, and property become a mockery to many in the face of enforced compulsory retirement which denies the oldster that right which gave his whole life meaning prior to the age of 65—and that is the right to work.

In any labor market there is a sizable number of workers who have, for various reasons, never stayed long enough in one place to take root. These constitute the bulk of those who find it more and more difficult to get jobs as they approach 65 years of age. If the truth were known, they are largely the ones who would have difficulty getting employment on a tight labor market irrespective of their age. These should not constitute a part of the so-called problems of the senior citizens.

In this latter area, we have a totally different challenge. The rising cost of supporting the aged in retirement; the recognized value of the older worker from the standpoint of efficiency, spoilage, absenteeism, and loyalty; and the recognized wastefulness occurring when human resources are squandered at the age of 65 make us view with grave doubts the present concept of compulsory retirement. It is the responsibility of the community and of industry to provide work for those who are willing and able. This concept is so very ably expressed by President John Erik Jonsson of Texas Instruments Incorporated when he says, "Never hire anybody you don't expect to keep the rest of his working life." It is the responsibility of the aging worker to realize that he has been and will continue to be a member of a society that wants and needs what he has learned through his years of effort. An adequate earned income is certainly the right of every member of a community. Even in the aged group this should be commensurate with his contribution and certainly should be larger than that provided by the usual retirement allowances plus social security.

Member of the Committee on Aging of the American Medical Association and Chief of the Section of Medicine, E. W. Sparrow Hospital.

Much is made of the concept of there being no place for the oldster because of his failure to keep pace in the production line. But what good is a production line without the consumer! Henry Ford must have realized this a number of years ago when the automotive industry was in its infancy. He envisioned the great productive lines of the future as the inevitable result of progress. His contribution to the industrial problems of the day was not to find more leisure for the individual who is not trained to use it in the first place but to provide more units of his product at a cost within the reach of all. When this did not quite occur, he raised the daily wage of every member of his factory to $5 a day, an unheard of figure in those days. Instead of causing an economic collapse, it provided improvement in living standards of his employees as well as a greatly increased market for his automobiles. The great army of the retired which will grow larger with each advancing year is lost to the market because of inadequate income at the present time. Continued employment permits incomes above the usual retirement level and provides consumers with adequate funds to stimulate production.

Community planning and growth should take into consideration the needs of its older citizens. Some groups cling to the idea that these should take the form of a community for the aged within a community. Large multiple dwellings make it possible for similar needs to be met in group fashion. This is largely the approach observed in the so-called welfare state. There are several establishments of this variety being tried in the United States but with a somewhat different atmosphere. Fraternal, labor, or religious ties form the basis for this type of housing care. As nonsegregation becomes more prevalent, it is hoped that discrimination against the aged will become less articulate and the oldster will be able to take his place as a senior citizen and live and work in any part of the community he wishes. This privilege should continue until, because of either health or will, retirement becomes the course of choice. The future may still prove that a closer association of youth and age can be extremely beneficial to both.

Because of the decrease in infant mortality, and because many epidemic and endemic infections have practically disappeared from the scene, an increasing number of people are living to advanced years, and the profile of medicine has accordingly changed greatly. More opportunity exists for the application of theories of preventive medicine in an effort to further eliminate man's illnesses. More long-term illnesses also exist, especially among the aged, which make us review all our present methods of caring for the sick. Adequate medical care must be provided to keep the well oldster well; to keep the marginal oldster from becoming sick; and, when the oldster gets sick, to provide for his acute illnesses. The facilities of hospitals should be available as long as necessary in cases of acute illness, but then hospitals for chronic cases, rehabilitation centers, and convalescent nursing or old age homes are needed to complete the total care of the patient.

In summary, it seems that we are merely asking that the citizen who is entitled to vote and speak in his community be more advanced in dignity and standing and attainments and that his community recognize anew that the rights of citizenship be not abridged because of age.

BUREAU OF INVESTIGATION

BIMINI FUÉ DESCUBIERTO!!

IS "PEGA PALO" THE ANSWER?

According to the natives (and Webster, incidentally), Bimini was a fabulous island said to belong to the Bahama group, on which was located the Fountain of Youth.

When "el conquistador" Juan Ponce de Leon heard this, being a man of action, he took his company of Spanish adventurers and started out in earnest to claim it for the glory of Spain, and possibly to take a drink or two himself. Instead, the poor man discovered Florida. But there he found such an inhospitable group of natives that neither did he locate the Fountain nor did he get to build any fabulous hotels. Instead, he withdrew, mortally wounded, to Cuba.

This, of course, happened quite a few years ago. But legends such as this are extremely difficult to suppress, particularly when they have such an appeal, especially to the male of the species. This phenomenon was noted in The Journal in a report wherein Hess and his associates[1] observed, "The middle-aged man deplores his waning manhood and wants something done about it. He accepts the fact that he can no longer play a set of tennis or stay up all night at a party, but he will not gracefully accept his diminishing sexual vigor."

The verity of this observation is widely known, apparently. A lay publication which frequently devotes its columns to things sexual, and occasionally to things medical, published an article in a recent issue on the subject of "Pega Palo," a "vine that makes you virile." It was stated therein that the vine is native to the Dominican Republic and found only there, that the natives had used it for centuries, and that men of 80 acted like men of 30.

Although the island of Hispaniola (containing Haiti and the Dominican Republic) is not one of the Bahamas, it is near enough to provide a worthy locale for the discovery of such an important commodity. It goes without saying that the magazine enjoys wide circulation. A good many readers started casting about for a means to acquire the answer to their individual problem. A number of these persons, and perhaps others, wrote to this Bureau for information.

Pega Palo has been described to this Bureau variously, from a botanical standpoint. The Chicago distributors furnished the name Rhynchosia serpentine and later Paullinia sorbilis or cupana. Another source furnished indication that the vine is Rhynchosia pyramidalis. So far as is known, no active plant principle under any of these designations has been isolated or identified or been demonstrated to have any effect whatever as a drug.

It has been reported in the daily press that visitors to the Dominican Republic could obtain the material in hotels and gift shops and that Pega Palo had been processed into a concentrated liquid form, obtainable in very small bottles, for $3.50 to $5.00. Enterprising Americans, however, obtained quantities of the vine itself, and these were soon on the market, sold by mail for $15 for a cut of the vine approximately 8 in. long. In lots of eight, the bargain rate was $75. Purchasers of the vine were instructed to immerse it in a bottle of liquor—rum, bourbon, or whatever the purchaser had handy. After allowing the vine to "steep" for approximately eight days, the user should start with a 2-oz. "shot," and then continue according to his needs.

For obvious reasons, both the Federal Food and Drug Administration and the Post Office Department fraud division took umbrage, and each proceeded according to the laws it is obliged to enforce. The FDA has caused federal seizures of no less than nine lots of Pega Palo vines, charging misbranding by claims that the product is an aphrodisiac and that the labeling failed to bear adequate directions for use, and, further, that the sellers had failed to file a New Drug application. Such actions took place in federal court in Albuquerque, N. Mex.; Brooklyn, N. Y.; Chamberlain, S. D.; Chicago; Elyria, Ohio; Salt Lake City; and Yakima, Wash. Five of these cases have been closed on default decrees of condemnation and destruction. The four other cases are still pending.

The Post Office Department has announced the issuance of fraud orders against the Pega Palo Importers, Inc., the Roberts Company, the Lavergne Sales Company and Lavergne Sales, the Herbert Sales and the Herbert Sales Company, and the David Sales Company, all at Chicago. These fraud orders were dated June 19, 1957. Another, dated July 1, 1957, was issued against the B & E Distributing Company, at (of all places!) Bountiful, Utah. There is indication in the trade press that other fraud orders are in process.

Not so, however, with "Tintura de Pega Palo Fortidom," apparently now available on prescription as an experimental drug! The Bureau recently had occasion to confess its lack of knowledge on the subject of the Tintura (which appears to be a liquid extract), particularly as to the manner in which it is offered to physicians under an experimental program.

Recently, however, one physician quoted from a letter that he had received from a firm in Texas, in part as follows:

> . . . Tintura de Pega Palo Fortidom will not be available for personal use except through physicians until we have completed the investigational stages which we anticipate will be from eight to twelve months.
>
> It is preferred that the Tintura be mixed with a beverage of low alcoholic content such as wine. However, it may be mixed with soft drinks, milk, fruit juices, etc. It is intended that six tablespoons of the one to five mixture be taken three times daily for the first two days, resulting in the patient absorbing one and one-half tablespoons of Pega Palo the first day and one-half tablespoon the second day. Thereafter he should take a total of six teaspoons three times daily of the one to five mixture, resulting in his absorbing a total of three teaspoons of Pega Palo daily.
>
> We sincerely appreciate your interest and hope that you will decide to assist us in this project, as we have had a number of inquiries in G - - - - - -.
>
> Tintura de Pega Palo Fortidom can be furnished to you at $192.00 per gallon, which is $1.50 per ounce, or $50.00 a quart. It has been suggested that the patient be charged $3.00 per ounce, plus the regular charge for an office call, and that the patient be furnished from six to eight ounces at a time. However, this is entirely between the doctor and his patient.

From the above, it would not appear that the chief concern of the distributor is the obtaining of persuasive data to establish safety for use, the sole reason why new drugs are subject to testing under the federal act. This looks more like a sure-fire business proposition! A doctor who would participate in such a program would be obliged to tell his patients that their role as guinea pigs is in a rather nebulous field; they would be taking a product without identified drug properties!

Obviously, serious medical investigators would feel a lack of challenge in the premises, particularly when they are dealing with a preparation described by the "Tintura" promoters as "a product of Nature compounded with exacting care to enhance the natural zest for living." (It appears reasonable to assume that the Tintura de Pega Palo Fortidom is essentially the same as the Pega Palo vine now contraband in interstate commerce.)

But, assuming that there is reason to doubt the power of this alleged member of the Rhynchosia family to accomplish its Biminian purpose, there is, in a more recent issue of a magazine of similar character (identity unknown), an "exclusive" from Peru. This one is "Chuchiwasi," "the drink that can increase your virility." Again the reliance is on an alcoholic vehicle—which may account for the whole promotion.

Reference

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MEDICINE AND THE LAW

AUTOPSY

This is the last in a series of six articles dealing with the necessity for and proper format of certain medicolegal forms. The subjects to be covered are (1) consent to operations and other medical procedures: (2) patient's right to privacy; (3) confidential communications and records; (4) artificial insemination; (5) the physician-patient relationship; and (6) autopsy.

This material has been prepared and will be published in book form by the Law Department of the American Medical Association under the title "Medicolegal Forms with Legal Analysis." The book will include extensive legal citations and a substantial number of additional forms which have not been included in this series of articles.—Ed.

After the death of a patient, his right to freedom from interference automatically passes in a modified form to his spouse or to his next of kin, and any unauthorized interference with his dead body exposes the offender to a suit for damages by the person entitled to its custody. One who participates in an autopsy to which the surviving spouse or next of kin has not consented and which is not authorized by law is also subject to criminal prosecution.

Generally, the person entitled to possession of a body for purposes of burial is entitled to authorize an autopsy upon it to determine the cause of death. The right to the body, and the attendant right to give or withhold consent to an autopsy, does not vest in the executor. The right vests in the surviving spouse, providing he or she was living with the deceased at the time of death in the normal relations of marriage. If the surviving spouse is not living with the deceased at the time of death in the normal relations of marriage, or if the surviving spouse waives the right, it will vest in the next of kin. So long as the surviving spouse asserts her rights to the body and does not abuse it, the next of kin have no rights with respect to the body and have no cause of action for the performance of an unauthorized autopsy on it. If there is no surviving spouse, the right vests in the next of kin, in order of kinship. Under such circumstances, a child of the deceased has rights superior to those of anyone else, unless it be the coroner or medical examiner. If the deceased is not survived by a child or children, authority over the dead body normally vests in the parents. It is not clear in those cases where the deceased child is a minor whether the consent of the father only is sufficient or whether the consent of the mother is also necessary. If the parents of the deceased minor child are divorced or separated, consent to the autopsy should be obtained from the parent who has custody of the child. In the absence of a child, children, or parents, authority over the dead body normally vests in brothers and sisters and so on through various degrees of consanguinity.

There are statutes in some states which provide for the order of the right to control of a dead body. The law has not undertaken to fix the relative rights of persons of equal degree of kinship, that is, the relative rights of several children, or of several brothers and sisters, and so on. Generally, it will be found that some one of a given group of children or brothers and sisters will be at the place of death and will assume charge of the body and it is to such a one that application should be made for permission to perform an autopsy.

In Wisconsin, there is a statute which provides that whoever of the near kin assumes custody of the body for burial purposes may give permission for autopsy. A Kentucky court has held that a physician is not liable where, without the consent of the relatives of the deceased, he performs an autopsy to determine the cause of death in order to comply with a statute which requires the physician's certification as to the cause of death. However, this does not appear to be the general rule.

The deceased may have left directions that an autopsy should be performed on his body. The trend of the American cases is to honor the deceased's directions as to the disposition of his body. There are statutes in a number of states providing that a person may, in his lifetime, direct what is to be done with his body after death. With the exception of the California statute, these provide that the authorization must be in writing; under the California statute, the direction must be in writing only if it directs that the remains are to be given to a teaching institution or hospital. In some states the workmen's compensation commission is permitted to order an autopsy when it is claimed that death resulted from an occupational cause. Sometimes an insurance policy will permit an autopsy and, in states recognizing such consents, the physician acting under such authority will be protected.

Authority of Coroner

In all jurisdictions, a public official, known either as the coroner or medical examiner, has legal authority to perform autopsies with respect to deaths due to other than natural causes. When death is due to violence or casualty or there is reasonable ground for believing that it has been caused in that way, the right to custody of a dead body vests immediately in the coroner or the medical examiner. When the coroner or medical examiner has legal control of a dead body his authority is supreme. He is entitled to the body in the condition in which it was at the moment of death. In general, he is authorized to perform or procure an autopsy on any body coming into his lawful custody.

It is, therefore, important that a physician should not undertake to perform an autopsy without the consent of the coroner or medical examiner in any case in which the body is properly within jurisdiction of such officer, even though the surviving spouse or next of kin may have consented. If the coroner or medical examiner authorizes the performance of an autopsy on a body which is not within his jurisdiction, he and those who perform the autopsy at his direction are liable to the surviving spouse or next of kin. Therefore, it is equally important for the physician that he undertake to perform no autopsy on the basis of authority from the coroner or medical examiner unless he is sure that the officer has jurisdiction over the body and power to authorize the autopsy. Where the jurisdiction of the coroner or medical examiner is doubtful, consent should also be obtained from the surviving spouse or next of kin.

Limitations on Autopsy

All autopsies must be performed in a manner which shows decent respect for the body. In the absence of a specific restriction, consent to an autopsy by implication authorizes the physician to conduct it in the usual and approved manner practiced by the profession and to remove for examination and study such parts as must be examined and studied in order to accomplish the purpose of the autopsy. However, authority to remove parts or organs for study and examination does not, in the absence of a specific agreement, include the authority to retain them permanently. If there is no specific authorization for retention of organs or parts of the body, those that have been removed must be replaced in the body cavity before interment. The person who has the right to authorize an autopsy has the right to state the limits within which it shall be performed, and the autopsy must be performed strictly within those limits.

Form of Consent

A number of states have statutes which provide that consent to an autopsy must be in writing. Although a nonwritten consent may be legally sufficient in some states, a physician should not perform an autopsy without having first obtained a specific written consent or authorization which he can produce as proof in the event of a subsequent challenge to his authority. As with consents to surgical operations, the consent to autopsy should be specific rather than general. If it is necessary or desirable to remove and retain parts of the body for further study and examination, even though they be but minute sections for microscopic study, specific consent should be obtained. Although it has been held that a physician may lawfully perform an autopsy under consent obtained in his behalf by some other person, the physician may best protect himself by personally obtaining the consent from those authorized to give it.

FORM 1.—*Authorization for Autopsy*

NAME OF DECEASED..AGE........SEX........

RACE............MARITAL STATUS............DATE OF DEATH............

1. I hereby authorize Dr.., and such persons as he may designate, to perform and attend a complete autopsy on the remains of.. for the purpose of determining the cause of death. Authority is also granted for the preservation and study of any and all tissues or parts which may be removed. This authority shall *be limited only by the following express conditions: (e. g.* "limited to abdomen," etc.)...

....

2. It is understood that due care will be taken to avoid mutilation or disfigurement of the body.

3. This authorization is given with the understanding that no charge will be made and that I will be informed of the results of this autopsy.

Signature of
next of kin..

Address..

City and
State...

Relationship to
the deceased...

Signature of
Witness...

Address...

City and
State... Date..................

Note. Next of Kin: For the purpose of this form the surviving spouse shall be considered the next of kin. In the absence of a surviving spouse, the next of kin shall be identified in accordance with the applicable State law.

FORM 2.—*Authorization for Tissue Donation*

To Dr...:

1. You are hereby authorized to remove the following tissues:..
(Insert: bone, artery, cartilage, skin, fascia, dura,
....from the remains of
nerve, tendon or eyes as desired.)
...., for donation of the aforementioned tissues to...
Authority is also granted to use the removed tissues in grafts upon living persons, or to otherwise dispose of these tissues in accordance with customary medical practice.

2. It is understood that due care will be taken to avoid unnecessary disfigurement of the body.

Signature of next of kin..

Address..

Relationship to the deceased..

Signature of witness.................................... Date....................

Address..

City and State..

Note. Next of Kin: For the purpose of this form the surviving spouse shall be considered the next of kin. In the absence of a surviving spouse, the next of kin shall be identified in accordance with the applicable State law.

FORM 3.—*Consent to Disposal of Dead Fetus*

Date....................

We hereby authorize and request.. to preserve for scientific purposes, or to dispose of, the dead fetus or the body of the baby born to.. on.., 19............, in accordance with customary medical practice. All claims to the body are hereby relinquished.

Signed..

Signed..

Witness..

Note. This consent should be executed by both parents, except that in the case of an unmarried mother her consent is sufficient.

MEDICAL-LEGAL PROBLEMS AND THEIR SOLUTIONS

In any discussion of medicolegal affairs it is advisable to reflect initially, if only briefly, on the fact that within the last 30 years the practice of medicine has become an increasingly complex undertaking, and during that period there has been a corresponding increase in related legal problems. The legal aspects of the patient-physician relationship have been complicated by many changes, including the practice of dividing the responsibility for the diagnosis, care, and treatment of patients with other physicians; the advent of group practice, of health insurance, and of contract practice; the growing number of circumstances in which the physician examines but does not treat, as in the examination of insured persons, of employees, of school children, of claimants of pensions, of claimants of damages for personal injury, and of persons accused of crimes; the increase in the number of physicians employed on a part-time or full-time basis; and the increase in the number of patients cared for through charity or by public funds.

Medical Professional Liability

Certainly one of the most important examples of legal complications in medical practice involves the subject of medical professional liability. Although not a new problem, it has, through a combination of recent circumstances, demanded an inordinate amount of attention from individual physicians and medical organizations. Some of the causes for this increased emphasis are the tendency of the public to seek financial remuneration for real or imaginary damage; the increasing tendency of juries to award more frequent and higher judgments; and inflation, necessitating higher payments for claims, judgments, and defense. The unfavorable articles in lay magazines dealing with the increased costs and medical care in general have created antagonism against the physician, while the favorable articles on new drugs, methods of treatment, and modern miracle surgery have in some instances been sufficiently exaggerated to lead the public to believe that a less than perfect result must be evidence of negligence.

What exactly then does the law require of a physician? It requires that when he undertakes to treat a patient he must possess and exercise the degree of knowledge, skill, and care commonly possessed and exercised by other reputable physicians in the locality. If he holds himself out as a specialist he must meet the standards of the specialist in his chosen field. He must keep abreast of progress in his profession and utilize standard and accepted methods and procedures in diagnosis and treatment. He must act with the utmost good faith toward his patient at all times. Of course he may not touch—certainly not operate upon—the patient without valid authorization. Further, his legal duty is not affected by the fact that his professional services are rendered gratuitously.

In a comprehensive report[1] prepared in 1941, Dr. Hubert W. Smith attempted to define the fundamental principles on which the legal status of the varied problems of medical professional liability must be determined. In his report he has outlined a rationale rather than a mere catalog of legal decisions.

In a more recent study[2] of the original sources of the law of professional liability, Dr. Andrew A. Sandor of California has analyzed all of the appellate court cases in the United States in the field from 1794 through 1955 with the exception of those resulting from counterclaims. His study shows not only the increased incidence of professional liability cases but also the areas of medical practice most vulnerable.

As impressive as Dr. Sandor's figures are with respect to reported cases, it must be remembered that they reflect only a small fraction of the claims and suits filed each year against physicians. In sional liability claims and suits and the availability and cost of liability insurance. Armed with these facts, we should be in a position to plan a long-range educational program for presentation to both the medical and legal professions.

The Law Department is continuing its study of this subject in other areas. An opinion survey among attorneys and members of the judiciary experienced in the handling of medical professional liability suits will be included. There will also be a study of insurance experience and rates and a survey of comparable fields of negligence actions.

The series of articles and reports that have appeared in The Journal between Feb. 2 and Oct. 5, 1957, will be published in booklet form and distributed by the American Medical Association.

Medical Expert Testimony

It is wrong in considering the availability of medical testimony to confine one's thinking to professional liability cases alone. This is so because it leaves the false impression that the medical profession has boycotted the courtroom in such actions. The actual facts are that the vast majority of doctors have an aversion to appearing in court and testifying in any kind of lawsuit. Although a few have had unpleasant experiences as witnesses, most have been frightened by the exaggerated reports of their colleagues of "murderous cross-examination" by opposing counsel.

In fairness to the physician, consideration must be given to the basic reasons behind this aversion. First, there is a fundamental difference in the method of approach of law and medicine so far as the discovery of truth is concerned. The lawyer attempts to maintain his position by argument and contention with opposing counsel. His life is one of advocacy of causes; his object is to magnify his own arguments and to belittle those of his opponent. The physician, on the other hand, does not live by contention. His training is in the free and open atmosphere of the laboratory, hospital, sickroom, or private office. He demands full and frank discussion and disclosure of all phases of a case. When all pertinent data are collected, he correlates them and forms a judgment. By training and practice, therefore, the whole tempo and attitude of the day-to-day experience of the physician and lawyer are totally different.

In addition to being unfamiliar with situations which to a lawyer are commonplace, physicians sometimes complain that they are made parties to the case in which they testify. This practice should, of course, be discontinued. Medical witnesses should testify concerning a certain set of facts and should never be made an advocate in the proceedings.

Another reason for the doctor's hesitancy to act as a witness is his failure to understand the concept of examination and cross-examination. It appears to the average medical witness that while one attorney is trying to establish the truth, opposing counsel is trying equally hard to keep the truth from being brought before the jury and court.

The physician also dislikes the time that court cases take from his daily activities—and it is not because he fears he might lose a fee. Physicians today are very busy people, with morning, afternoon, and sometimes all-night hours. The effect of stories about doctors cooling their heels in court for hours on end while lawyers argue seemingly obscure legal technicalities is difficult to overcome.

However, in the interest of the profession and particularly the public this hesitancy on the part of the physicians to testify must be overcome. The need for an all-out effort is obvious from the fact that from 65 to 80% of all cases tried today require medical testimony; that 7 out of 10 personal injury cases are decided on medical rather than legal considerations. During the past decade medicine has been making tremendous strides—amazing progress with surgery and with drugs. Doctors are now able to do new, unusual, and complicated procedures. Consequently when these procedures become germane to a litigated case, an ethical and qualified physician should be available and willing to testify. Juries cannot and should not evaluate these matters without expert medical advice.

Further, the role of the medical expert witness should not be played by a few. It is appalling to note the unprofessional and unethical actions of the few doctors who have become "professional witnesses" for plaintiffs and defense counsel. This new "medical specialty" is an injustice to the medical profession and to the public, and should be eliminated. In this endeavor the active assistance of the legal profession is imperative, for wherever a doctor testifies improperly there is at least one lawyer encouraging and misleading him.

Related Activities of Organized Medicine

The American Medical Association, with a membership of some 160,000 physicians, is concerned with many problems of medicolegal, social, economic, and political nature. Medical expert testimony is such a problem. It is one that has been of interest and concern to the medical profession for many years.

The proceedings of the House of Delegates of the American Medical Association, the policy-making body of the Association, contain many references to the subject. In 1914, a Committee on Expert Testimony reported after a three-year comprehensive survey of the entire field of medical expert testimony. The Committee's recommendations were to distinguish between matters of fact and matters of opinion, to place no restrictions on the testimony of fact, and to limit the testimony on opinion to those experts called by the court. The Committee recommended that the compensation of such experts should be fixed by the court and charged as a part of the cost of the case or against the party requesting the testimony. The Association accepted the report with the comment that "the solution to this vexing problem cannot be forced; it must come gradually and with the cooperation of the American Bar Association and the various state bar associations."

In 1929, the House of Delegates again adopted a resolution expressing its interest in the correction of the abuse of medical expert opinion evidence and offering cooperation to the American Bar Association and others in promoting the passage of legislation and in bringing about suitable changes in court procedure with reference to such evidence.

The American Medical Association has done more than just adopt resolutions on this matter. As an example, in October, 1955, the American Medical Association sponsored a series of three Regional Medicolegal Symposiums—in Chicago, Omaha, and New York City.

A part of the program at each meeting was designed to acquaint physicians with their essentiality in litigation and to dispel their fears of testifying in court.

To this end a demonstration of a mock trial was presented to show the wrong way and the right way for a physician to act in his role as a medical witness. The demonstration was repeated before medical and legal groups in 15 cities last year. In addition the members of the staff of the A. M. A. Law Department have presented talks on this subject at numerous medical or medicolegal meetings.

About two years ago, the Wm. S. Merrell Company, drug manufacturers in Cincinnati, and the Dynamic Film Corporation of New York saw the potential in the medical-legal field. They asked the A. M. A. to cooperate in the preparation of a series of six medicolegal films. After consultation with the American Bar Association, it was agreed to begin the project, and our demonstration of the physician as a medical witness was selected as the first topic. The second film, which was presented at the A. M. A. meeting in New York in June, deals with medical professional liability.

Again, in March of this year, the A. M. A. held another series of three regional medicolegal meetings—in Atlanta, Denver, and Philadelphia. Over 1,000 attorneys and physicians attended these meetings to hear and participate in a day-and-a-half discussion of three subjects: The Use of Chemical Tests for Intoxication in Court, Trauma and Cancer, and Medical Expert Testimony.

Committees for the Review of Medicolegal Testimony

Since its creation in August, 1954, the Law Department of the American Medical Association has received many inquiries from state and county medical societies desiring to initiate committees for the review of medicolegal testimony. Accordingly, each state society has recently been asked for information concerning the activity and experience that it or any of its county societies has had in organizing and maintaining such committees or in working on any other joint activities with the Bar Association.

The so-called Minnesota Plan was initiated in 1940 when a committee was appointed by the president of the Minnesota State Medical Association, with the approval of its council, to review those court cases in which medical testimony appeared to the court, to the attorneys, or to physicians to have been so contradictory as to indicate that one or more of the medical witnesses had consciously deviated from the truth.

Thereafter, the Illinois State Medical Society, the Kansas Medical Society, the Chicago Medical Society, and the Harris County Medical Society (Texas) established committees patterned after the Medical Testimony Committee in Minnesota. In addition to the above, the Louisiana, Indiana, and the Wisconsin Medical Societies have worked with their state bar associations in connection with the review of medicolegal testimony. The Medical Disciplinary Board Act of Washington provides for the review of medical testimony by the disciplinary board.

In some states and cities, committees or panels have been created for the purpose of providing the courts with impartial medical expert witnesses. About 15 years ago, the Los Angeles County Medical Association and the Los Angeles Bar Association jointly established a panel of physicians and surgeons to assist the courts in obtaining impartial medical testimony. Today, there are at least two physicians on the panel for selected specialties, or between 20 and 24 members. The panel physicians are selected by the joint committee of physicians and attorneys after each has indicated his willingness to examine the patient and testify. The court makes all the arrangements, including the establishment of time and place of examination and the compensation the physician is to receive. This cost is generally borne by the party who requests the appointment of the independent examiner. An impartial medical witness program is now in operation in New York County. A similar plan has been initiated by the Baltimore City Bar Association, the Maryland State Bar Association, and the Medical and Chirurgical Faculty of the State of Maryland.

In addition to the work of the medical societies, the American Bar Association, the state bar associations, the National Conference of Commissioners on Uniform State Laws, and many individuals within the legal profession have devoted their talents liberally in an effort to eliminate some of the problems associated with the use of expert witnesses. And, as I understand it, the consensus is that impartiality can best be achieved by somehow making the expert a neutral witness, not obligated in any way to either party. Two means for accomplishing this have been suggested: one by legislation, and the other by voluntary agreement.

The report and recommendations of the National Conference of Commissioners on Uniform State Laws, in 1936 and 1937, adequately describe both legislative and voluntary efforts to that date. The recent report[9] of the Special Committee of the Association of the Bar of the City of New York on its Medical Expert Testimony Project includes a review of voluntary programs and objectively and adequately describes the very excellent medical testimony project of the New York Bar.

Both reports bespeak the efforts of the bar to improve the quality of medical expert testimony. Yet, despite the continued and conscientious efforts of both professions it cannot be said that a solution has been discovered. None of the suggestions yet offered has had wholehearted acceptance by the judiciary, the bar, or the public.

Although the basic reluctance of physicians to testify in litigation generally is undoubtedly greater in medical professional liability cases, the reasons should not be hard to understand. Further, to assume that the medical profession is unique among professional groups in this regard is false. In a District of Columbia case, the judge stated: "Physicians, like lawyers, are loathe to testify that a fellow craftsman has been negligent, especially when he is highly reputable in professional character."[10]

The professions of law and medicine are both far from exact sciences. There is fortunately room for, and in practice there exist, in both professions, many different, equally valid opinions on a given set of facts. Both groups deal with complicated problems, the solutions to which can vary, in an individual case, on the basis of the most minute difference in circumstances.

In an address[11] presented in Dallas in August, 1956, Dr. Dwight H. Murray, who was then President of the American Medical Association, said in this regard:

> In medicine there has been, and I hope always will be, room for disagreement. Many procedures have their own adherents and when suggested therapy differs there will always be strong supporters for each approach. As an example, some doctors in setting a fracture prefer a slight offset of the bones on the theory that a stronger callus is formed. Others demand positive and complete alignment. Either can point out examples of his theory . . . walking, riding, swimming or golfing. Either honestly could express disagreement in private or on the witness stand, with the treatment given by the other.

These factors, when combined with the natural friendship and pride existing between members of the same profession, are bound to result in a reluctance on the part of a physician or an attorney to condemn publicly a fellow practitioner. If the opposite were true, the resulting professional climate would most certainly stifle legal and medical progress and establish a relationship between members of the professions and between the professional man and his patient or client which would seriously impede the administration of justice and impair the public health.

In areas where it is obvious that physicians or attorneys are neglectful of their obligations or are dishonest, then the two professions should work together to disfranchise those who make a mockery of justice. Licensure should be withdrawn by the state from the physician who sells his testimony to the highest bidder or shades it to the extent that he is paid. And by the same token, it follows that lawyers who engage in and encourage such physicians should likewise be denied the right to practice their profession.

Interprofessional Cooperation

Although members of both professions and medical and legal associations at the national, state, and local levels have had these matters of interprofessional concern under consideration for some time, it is only comparatively recently that concrete steps have been taken to solve them. Since 1954, the American Medical Association has greatly accelerated its efforts in the field of medicolegal relations to meet what it considers to be a growing desire on the part of the legal and medical professions to join in a sincere cooperative effort.

Medicolegal Conferences

As indicated earlier, the Association through its Committee on Medicolegal Problems and its Law Department has planned, encouraged, and participated in medicolegal conferences at the regional, state, and county levels. In developing the theme of these conferences, it was recognized that lawsuits are adversary proceedings and that conflict is a major element in the medicolegal field. Discussions and papers presented from the viewpoint of each profession proved that doctors and lawyers are both attempting to obtain the best results from individual and professional efforts. In presenting the view of medicine or law, every effort was made to clarify misunderstandings, not for the sake of understanding alone, but as a means to an end—the welfare of the individuals served, whether identified as patients, clients, or the public. At the regional meetings sponsored by the American Medical Association in 1955 and 1957, three broad areas of medicolegal relations were considered: medicine's contribution to the administration of justice; mutual medicolegal problems as viewed by each profession; and the role of a medical expert witness under proper and improper courtroom conditions.

In the area of the administration of justice there were provocative discussions on traumatic neurosis, trauma and disease, medical expert testimony, and medical science in the administration of criminal justice. In the area of medicolegal problems there were discussions of the several aspects of professional liability, a consideration of the professional man as a taxpayer, and an exploration of the best methods to insure unbiased medical expert testimony.

Medicolegal Liaison and Interprofessional Codes

The Cincinnati Bar Association and the Cincinnati Academy of Medicine were among the first groups to adopt formally an interprofessional code ("Standards of Practice Governing Lawyers and Doctors in Cincinnati"). This agreement, which contains a preamble and 12 brief paragraphs, covers with clarity and efficiency three of the most important problems affecting the two professions, namely, the obtaining of medical testimony, medical records, and provisions of adequate compensation to the physician for his services in connection with litigation.

Many other cities and states have followed their lead and have either adopted or are actively studying such a document. The codes, in general, contain provisions relating to written reports to be furnished by the doctor; conferences between physician and attorney prior to trial; arrangements made in advance for the physician to testify; the conduct of a physician while on the witness stand; and the compensation a physician should obtain for testifying. It is generally acknowledged that these codes will not, in and of themselves, eliminate interprofessional friction, but a continuing effort must be made if these problems are to be resolved.

In addition to such codes of understanding, the District of Columbia and 25 state medical societies have either established liaison with their bar associations or expect to do so in the near future.

Recently, the American Bar Association and the American Medical Association appointed a national medical-legal liaison committee. This is a step that is long overdue and should provide another effective link between two great professions.

Conclusions

It should be obvious to any conscientious and unbiased observer that an honest effort has been made during the past few years to improve the application of medical science in the administration of justice.

It is nevertheless still true that physicians in the practice of their profession have made and will continue to make their share of human errors, that physicians need to be educated to their responsibility to testify in court in various types of cases, that it is necessary to make a closer review of medical testimony of the type which is, unfortunately, solicited and presented, on occasion, for plaintiffs and defendants, and that a better rapport between the legal and medical professions is an absolute necessity. It is equally obvious that the mere existence of these facts and the need for improvement falls far short of the "medical conspiracy" which has been so glibly and irresponsibly alleged.

Persons who make charges of this type do not want ethical, objective, and impartial medical testimony available in all litigation—they prefer a further distortion of the theory of *res ipsa loquitur*, and an extension of the legally objectionable type of legislation that has been enacted in Massachusetts and Nevada. True, these mechanisms produce "second-rate" medical evidence, but that appears preferable, to some, to the presentation of proper medical facts.

The American Medical Association, the American Bar Association, and many of the state and local medical and legal societies are just now becoming sufficiently acquainted with the mutual problems of medicine and the law to initiate concrete efforts at better understanding. The success of these efforts requires the assistance of all ethical and honest physicians and attorneys in the best interests of the public as well as the professions.

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10. *Christie* v. *Callahan* 124 F. (2d) 825, 828 (D. C. Cir., 1941).

11. Murray, D. H.: Impartial Medical Testimony, read before the Judicial Section, American Bar Association, Dallas, Texas, Aug. 28, 1956.

MEDICAL NEWS

ARIZONA

Center for Heart Studies.—A center for special heart studies has been established at St. Luke's Hospital, Phoenix, through the cooperation of the hospital board of directors and the Greater Arizona Heart Association. The center will enlarge facilities that have been available at the hospital for two years. The facilities and service function around cardiac catheterization and angiocardiography. Because of limitations in personnel and funds, the center is not intended as a general consultation service in heart disease; however, funds have been used to establish an adequate armamentarium for cardiac surgery.

CALIFORNIA

Society News.—The Radiological Society of Southern California has elected the following officers for the coming year: chairman, Dr. Donald Laing, Pasadena; vice-chairman, Dr. George Jacobson, Los Angeles; secretary-treasurer, Dr. Harold P. Tompkins, 658 S. Westlake, Los Angeles 57.

Personal.—Dr. Francis R. Schwartz has been appointed regional medical director for United Air Lines at San Francisco, replacing Dr. Arthur C. Ladd, who has taken an extended leave of absence for postgraduate studies at Harvard University, Boston.

CONNECTICUT

University News.—The Yale University School of Medicine Arthritis Study Unit will present Dr. Alexander B. Gutman, speaking on "Pathogenesis and Management of Primary and Secondary Gout" at the Fitkin Amphitheater, New Haven, at 8:30 p.m. Oct. 17. All physicians are invited.

FLORIDA

University News.—The Miami Chapter of the Phi Delta Epsilon Fraternity will present a lecture at the University of Miami Medical School Oct. 17. Dr. William C. Stadie of Philadelphia will be the guest lecturer and will discuss "Metabolic Abnormalities in the Diabetic State."

ILLINOIS

General Practice Meeting in Springfield.—The 10th annual scientific assembly of the Illinois Academy of General Practice will be held Oct. 22-25 at the Illinois State Armory, Springfield. Dr. Orvan A. Phipps is president of the academy. The following panel discussions are scheduled: immunology, therapy in cardiovascular disease, and pediatrics—emergencies, accidents, and behavior. The program includes the following topics by out-of-state speakers:

Pain Patterns in the Diagnosis of Certain Upper Abdominal Diseases, Dr. Lucian A. Smith, Rochester, Minn.
Management of Cardiac Decompensation, Dr. Milton W. Anderson, Rochester, Minn.
The Allergic Patient—His Problems, Office Diagnosis and Treatment (Emphasis on Bronchial Asthma), Dr. Nathan Silbert, Lynn, Mass.
The All American Killer or National Hazard, Sgt. E. C. Paul, Indianapolis, Ind.
Cervical Biopsies in Office Practice, Drs. George S. Allen and Malcolm L. Barnes, Louisville, Ky.
Minor and Major Vascular Accidents, Dr. C. R. Hanlon, St. Louis.
Current Concepts in the Control of Urinary Tract Infections, Dr. Ian M. Thompson, Ann Arbor, Mich.

Scientific and technical exhibits are planned. Ten hours of category I credit will be given academy members for attendance. Entertainment includes the annual banquet Oct. 24 at the Hotel Leland. For information write the Illinois Academy of General Practice, 14 E. Jackson Blvd., Chicago 4.

Chicago

Society News.—The Chicago Neurological Society has elected the following officers for 1957-1958: president, Dr. Oscar Sugar; vice-president, Dr. John J. Madden; councilor, Dr. Irving C. Sherman; and secretary, Dr. Meyer Brown.——The Chicago Orthopaedic Society has elected the following officers: president, Dr. Earl S. Leimbacher; vice-president, Dr. Fred L. Stuttle; president-elect, Dr. Carlo S. Scuderi; secretary, Dr. William A. Larmon, 700 N. Michigan Ave., Chicago 11; and treasurer, Dr. Charles V. Heck.

IOWA

Iowa Journal Honors Dr. Bierring.—The August issue of the *Journal of the Iowa State Medical Society* was dedicated to the life and achievements of Dr. Walter L. Bierring, who served as president of the American Medical Association in 1934. Dr. Bierring, who also received the A. M. A. distinguished service award in 1956, has had a career which Dr. Joseph B. Priestley, of Des Moines, said parallels in many ways the life of Sir William Osler, whom Dr. Bierring knew well. Besides Dr. Priestley, authors of articles about Dr. Bierring were Drs. Daniel J. Glomset, now of Santa Barbara, Calif.;

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Fred Sternagel, West Des Moines; and Lieut. Col. Philip G. Keil, now of San Antonio, Texas. Dr. Priestley said, "A great teacher and scientist, Dr. Bierring [who is 89 years of age] has a never-aging mind and an alert vision for everything that is best in medicine. His name is a symbol of medical progress not only for us but for medical men throughout the United States and even in foreign countries."

KENTUCKY

College of Physicians Meeting in Lexington.—The Kentucky regional meeting of the American College of Physicians will be held at the Central Baptist Hospital, Lexington, Dec. 7. Dr. Dwight L. Wilbur, president-elect of the college, will present "The Third Person in Medicine" at the dinner meeting. Insurance will be discussed by Mr. Ralph O. Claypoole Sr., Philadelphia. The program includes the following papers:

Pulmonary Abscess—A Review of 70 Cases, Drs. Daniel N. Picker and William Ruoff, Louisville.
Migration of Potassium in Periodic Paralysis, Dr. Matthew C. Darnell, Lexington.
Multiple Myeloma in Siblings, Drs. Wallace E. Harrell and J. Douglas Ruff, Lexington.
Disability Evaluation in Chronic Pulmonary Disease, Drs. William H. Anderson, Harlan, and William F. Schmidt, Norton, Va.
Oral Hypoglycemic Agents: Current Status, Dr. Franklin B. Moosnick, Lexington.

For information write the American College of Physicians, 4200 Pine St., Philadelphia 4.

MASSACHUSETTS

Research Grants.—Boston University School of Medicine has recently received a total of $275,045 in grants for specialized research projects. Of this total, $150,099 represents a series of renewal grants from the National Institutes of Health for projects currently being carried on in the school's departments of dermatology, surgery, physiology, anatomy, biochemistry, and medicine. In addition, the school has received seven new awards totaling $124,946 from the National Institutes of Health and the United Cerebral Palsy Association for special studies in pediatrics, pharmacology, and physiology. Largest of the new research grants was an award of $38,880 by the National Institutes of Health for a study of potential cancer chemotherapeutic agents. Another new award will be used to carry on a study of the development of cerebral paralysis in infants and children under the direction of the department of pediatrics.

MINNESOTA

Society News.—At a recent meeting of the Minnesota Radiological Society, the following officers were elected for the coming year: Dr. David G. Pugh, president; Dr. Leo A. Nash, vice-president; Dr. Osmond J. Baggenstoss, 1953 Medical Arts Building, Minneapolis 2, secretary-treasurer.

Dr. Slater Honored.—Dr. Sidney A. Slater, a member of the board of the National Tuberculosis Association and superintendent of the Southwestern Tuberculosis Sanatorium in Minnesota, recently received two honors. The University of Richmond awarded him a Golden Legion Certificate of Merit "in recognition of 50 years of service to the university since his graduation in 1907," and the Minnesota Medical Association presented him with a citation of appreciation for "pioneer service in tuberculosis control."

MISSOURI

Personal.—Dr. John Earl Smith, commissioner, Division of Health, St. Louis Department, has received the 1957 W. Scott Johnson Award of the Missouri Public Health Association for "distinguished service in public health" in the state.——The following are members of the new State Mental Health Commission: Dr. Edmond F. Sassin, St. Louis; and Dr. Emerson D. Chaisson, Columbia.——Dr. Armand E. Brodeur has been named assistant dean of the St. Louis University School of Medicine. His duties will be in the area of student admissions and curriculum scheduling. Dr. Brodeur received a master's degree in radiology from the university in 1952.

General Practice Meeting.—The ninth annual scientific assembly of the Missouri Academy of General Practice will be held Oct. 30-31 at the Governor Hotel, Jefferson City. Symposiums on endocrinology, gastroenterology, and chest diseases are planned. Topics by out-of-state speakers include the following:

Newer Concepts of Achalasia (Cardiospasm) of the Esophagus, Dr. Nicholas Hightower, Temple, Texas.
Diagnosis and Treatment Relative to Carcinoma of the Esophagus, Dr. H. M. Pollard, Ann Arbor, Mich.
Hemoptysis in Older Men, Dr. Katharine Boucot, Philadelphia.
Bronchoscopy in Diagnosis of Diseases of the Chest, Dr. Herman J. Moersch, Rochester, Minn.
Present Place of Surgery in Heart Disease, Dr. Charles P. Bailey, Philadelphia.
Treatment of the Arrythmias, Dr. William A. Sodeman, Philadelphia.

Panel discussions will follow the formal presentations. Ten hours of category I postgraduate credit will be given academy members for attendance.

NEW YORK

Society News.—Officers of the Northeastern New York Radiological Society for the 1957-1958 year are as follows: president, Dr. Richard Batt, Glens Falls; vice-president, Dr. Kencil Mitton, Schenectady; secretary-treasurer, Dr. Irving Van Woert Jr., Albany.

Personal.—Dr. Sarah H. Hardwicke, former assistant director of Strong Memorial Hospital, Rochester, has been appointed by the United Mine Workers of

America to be associate clinical director for 10 memorial hospitals in Kentucky, West Virginia, and Virginia. She will take office Nov. 1 in Washington. Dr. Hardwicke also has been an instructor and assistant attending pediatrician at the University of Rochester, Strong Memorial Hospital, Cornell University, and New York Hospital.

Name President of Medical Center.—Appointment of Dr. Carlyle Jacobsen as president of the State University of New York Upstate Medical Center, Syracuse, has been announced. The title of president at the center is a new one, and both medical centers of the state university will have presidents whose duties will be commensurate with the established titles. Since 1950 Dr. Jacobsen has been executive dean for medical education at the university offices in Albany. Formerly he was on the faculty of the Washington University School of Medicine, St. Louis, and later was appointed dean of the Graduate College at the State University of Iowa. He is chairman of the Committee on Disaster Studies of the National Research Council, and also serves on the Committee on Educational Research and Services of the Association of American Medical Colleges.

Appoint Preventive Medicine Department Chairman.—The appointment of Dr. Harry A. Feldman as chairman, department of preventive medicine of New York State University College of Medicine, Syracuse, has been announced. A member of the College of Medicine faculty since 1949, Dr. Feldman has been professor of preventive medicine since 1956. Under his direction, the department has undertaken studies on the control of streptococcal infections in persons who have had rheumatic fever. Dr. Feldman also initiated a research program on the epidemiology of toxoplasmosis. He is a member of the board of directors of the Syracuse Rheumatic Fever Foundation, and Onondaga Health Association, a diplomate of the American Board of Internal Medicine and an associate member of the Commission on Respiratory Diseases of the Armed Forces Epidemiological Board.

New York City

University News.—The Gamma Chapter of the Phi Delta Epsilon Fraternity at The Columbia University College of Physicians and Surgeons will present the annual Clay Rae Murray Memorial Lecture Oct. 14, 8 p. m., at Bard Hall. Dr. George Crile Jr., of Cleveland, Ohio will discuss "Some Problems in the Treatment of Cancer."

PENNSYLVANIA

Personal.—Dr. Leo H. Criep, conducted a course on clinical allergy at the Hospital dos Servidores do Estado in Rio de Janeiro Aug. 19-23 as the invited guest of the Brazilian Government. This was in celebration of the 10th anniversary of the opening of this federally controlled hospital. He addressed the Brazilian Allergy Society and the Argentinian Allergy Society.

Philadelphia

Discussion of Asian Influenza.—A panel discussion, "The Asian Influenza of 1957," the first of a series on "Current Problems in Preventive Medicine," will be held at the Hall of the College of Physicians of Philadelphia at 4:30 p.m. Oct. 15. Participants include Dr. John J. Hanlon, chairman, department of preventive medicine and public health, Temple University School of Medicine, and Dr. Tom F. Whayne, professor of preventive medicine and public health, University of Pennsylvania School of Medicine.

Cancer Research at Woman's College.—Cancer of the cervix will be the subject of a new $300,000 research study at The Woman's Medical College of Pennsylvania. The study, conducted by the college in cooperation with the National Cancer Institute of the U. S. Public Health Service, will involve the examinations of some 50,000 women employed in industry each year over a three-year period. A modification of the Papanicolaou technique will be used. Approved by the Philadelphia County Medical Society, the Uterine Cancer Cytology Research project, as it is officially titled, will serve for case identification and research study only. A report on each examination will be forwarded to the woman's private physician, and any further diagnosis or treatment will be carried out by him.

WISCONSIN

Grant for Leukemia Research.—An initial $32,987 grant from the National Institutes of Health to support the first year of a five-year research program on leukemia by Prof. Harry A. Waisman of the University of Wisconsin Medical School, Madison, has been anounced. The grant is the first of five totaling $165,000 to be expended in the program. Dr. Waisman will study the changes in body chemistry which occur in human beings and animals when they develop leukemia, and will conduct research on the use of existing anti-leukemic drugs and new drugs as they become available.

GENERAL

Rhinologic Society Meeting.—The third annual meeting of the American Rhinologic Society will be held Oct. 18-19 at the Palmer House, Chicago, to be followed by a three-day clinical session in the Illinois Masonic Hospital, Chicago. A total of 14 papers are scheduled and will be followed by panel and open discussions. Papers will be presented by two guests of honor: Dr. Francis L. Lederer, head, department of otolaryngology, University of Illinois College of Medicine, who will speak on "Otolaryngological Heritage," and Dr. John E. Bordley, head, department of otolaryngology, Johns Hopkins Medical School, Baltimore, who will speak on "Respiratory Mucous Membrane." The annual dinner will be held Oct. 19 at which Dr. Walter E. Loch, president of the society, will be toastmaster. There is no registration fee. Members of the profession are welcome. For information write Mrs. Mabel Campbell, 830 Wellington Ave., Chicago 14.

Gastroenterology Meeting in Boston.—The 22d annual convention of the American College of Gastroenterology will be held Oct. 21-23 at The Somerset. Boston. Drs. Carlos J. Sanz and Lino Boudet, Havana, Cuba, will present "Incidence of Esophageal Varices in Cirrhosis" the evening of Oct. 23. The program includes the following panel discussions and moderators:

Ulcerative Colitis, Dr. Everett D. Kiefer, Boston.
Diseases of the Esophagus, Dr. Franz J. Ingelfinger, Boston.
Peptic Ulcer, Dr. Seymour J. Gray, Boston.
Management of Massive Gastrointestinal Hemorrhage in Patients with Liver Disease, Dr. Norman Zamcheck, Boston.

A motion picture program and scientific and technical exhibits are planned. Entertainment includes the 25th annual banquet Oct. 22. A ladies' program has been arranged. For information write Mr. Daniel Weiss, executive director. American College of Gastroenterology, 33 W. 60th St., New York City.

Dietetic Association Meeting in Miami.—The American Dietetic Association will hold its 40th annual meeting in Miami. Fla., Oct. 22-25. Daytime sessions will take place at the Dinner Key Auditorium, where the exhibits of food and equipment companies will be on display. Speakers include Dr. Robert E. Shank, St. Louis; Dr. Rachmiel Levine, Chicago; Dr. Robert E. Olson, Pittsburgh; Dr. Walter M. Hamburger, New York City; Dr. Theodore B. Van Itallie, Boston; Miss Jane C. Ebbs,' Washington, D. C.; Mr. Keith A. Fitch, Atlanta, Ga.; Walter O. Walker, Ph.D., Coral Gables, Fla.; J. P. Lesperance, Ph.D., Coral Gables; Warren Guthrie, Ph.D., Cleveland; and James M. Godard, Ph.D., Miami. Major topics to be discussed include dietary allowances, treatment of diabetes, obesity, current research, food administration, refrigeration, communications and human relations, community nutrition, and education. For information write the American Dietetic Association, 620 N. Michigan Ave., Chicago 11.

Safety Congress in Chicago.—The 45th national safety congress, sponsored by the National Safety Council, will be held Oct. 21-25 at the Conrad Hilton, Sheraton-Blackstone, Congress, Hamilton, La Salle, and Morrison hotels, Chicago. Major General B. K. Young, director-general, of The Royal Society for the Prevention of Accidents, London, England, will present an address Oct. 21. A panel discussion to be held Oct. 23 will include the following subjects: engineering and statistical consultation, National Safety Council awards. supervisor development, programming of employee materials, and section activities. Safety films awards will be presented Oct. 22. The 12th annual federal safety conference. sponsored by the Federal Safety Council. will be held Oct. 21-22, as part of the national congress. Entertainment includes a banquet Oct. 23. Registration fee is $5. For information write the National Safety Council, 425 N. Michigan Ave., Chicago 11.

Angiology Meeting in Atlantic City.—The third international congress of the International Society of Angiology will be held at the Ambassador Hotel, Atlantic City, N. J., Oct. 18-21. Dr. Leroy Burney, surgeon general, U. S. Public Health Service, will present an address on Oct. 19. The presidential address will be Oct. 20 by Dr. A. Mario Dogliotti, Turin, Italy. The program includes the following symposiums: management of coronary artery disease, management of aneurysms of the aorta and major arteries of the extremities, management of arteriosclerotic occlusions of the aorta and major arteries of the extremities, and arterial replacements. Speakers from Belgium, France, Canada, Rumania, England, Germany, Brazil, Italy, Cuba, Uruguay, Poland, Sweden, Greece, and the U. S. are scheduled. Simultaneous translations in French, Spanish. and English will be available at all sessions. Motion pictures will be shown each morning and afternoon, running concurrently with the scientific sessions. Scientific and technical exhibits are planned. For information write Dr. Henry Haimovici, Secretary-General, International Society of Angiology, 105 E. 90th St., New York 28, N. Y.

Gulf Coast Clinical Meeting.—The 17th annual meeting of the Gulf Coast Clinical Society will be held Oct. 17-18 at the Buena Vista Hotel, Biloxi, Miss. The program includes the following topics and speakers:

Application of Radioactive Isotopes to Certain Problems of Interest to Practitioners of Medicine, Dr. Arthur L. Kretchmar, research clinician, Oak Ridge, Tenn.
Autonomic Nervous System and Symptomatology, Dr. Eugene Stead, professor of medicine, Duke University, Durham, N. C.
What's New in Obstetrics and Gynecology, Dr. J. P. Greenhill, senior attending obstretician, Cook County Hospital, Chicago.
Common Behavior Problems in Children and What to Do About Them, Dr. Richard E. Wolf, Children's Hospital, Cincinnati, Ohio.
Pathogenesis of the Postgastrectomy Syndrome, Dr. George H. Peddie, clinical instructor in surgery, Baylor University College of Medicine, Houston, Texas.
Early Management of Tendon Injuries of the Extremities, Dr. Robert A. Knight, assistant professor of orthopedic surgery, Campbell's Clinic, Memphis, Tenn.

A clinicopathological conference will be conducted Oct. 18, by Dr. Walter Sheldon. Emory

University, Atlanta, Ga. A banquet will be held Oct. 17. For information write the Gulf Coast Clinical Society, 200 West Jackson St., Biloxi, Miss.

Meeting of Life Insurance Medical Directors.—The 66th annual meeting of the Association of Life Insurance Medical Directors of America will be held Oct. 23-25 at the Hotel Statler, New York City. On Oct. 25 a discussion will be conducted on "Professional and Public Relations" by the following persons: Dr. Albert L. Larson, Travelers Insurance Company; Dr. Frank A. Warner, John Hancock Mutual Life Insurance Company; Dr. William O. Purdy, Equitable Life Insurance Company of Iowa; Dr. Frank J. McGurl, Prudential Insurance Company; and Dr. Charles D. Gossage, Confederation Life Association. The program includes the following topics and speakers:

Status of Radiation Safety in 1957, Dr. Reynold F. Brown, San Francisco.
Hematologic Disorders: Their Disabilities and Prognosis, Dr. Paul Reznikoff, New York City.
Diagnosis, Prognosis, and Treatment of Hypertensive Cardiovascular Disease, Dr. Robert W. Wilkins, Boston.
Hypertension in Substandard Insurance, Dr. Albert A. Pollack, New York City.
Mortality Study in Hypertension, Drs. William Bolt, Jack R. Barnes, and Murray F. Bell, New York City.
Effect of Myocardial Disease and Dysfunction on the Form of the Electrocardiogram, Dr. Charles E. Kossmann, New York City.
Recent Advances in Surgical Correction of Congenital Heart Lesions, Dr. Charles P. Bailey, Philadelphia.
Economics of Health Care, Dr. Howard L. Hauge, Mr. Albert V. Whitehall, and Dr. Percy E. Hopkins.

A reception will be held at 6 p. m., Oct. 23, to which ladies are invited. For information write Dr. Royal S. Schaaf, Secretary, the Association of Life Insurance Medical Directors, P. O. Box 594, Newark 1, N. J.

Fellowship in Dermal Pathology.—The Earl D. Osborne fellowship in dermal pathology, sponsored by the American Academy of Dermatology and Syphilology, provides annually the opportunity for study and training in dermal pathology to a postgraduate student who has completed satisfactorily at least one year or preferably two years of training in dermatology. The stipend is $4,000 a year, divided into four quarterly payments during the year's fellowship. The period of training will be spent at the Armed Forces Institute of Pathology, Washington, D. C., the appointment being subject to approval by the director of the institute. A student must complete one year of graduate training, either before or after completion of the Osborne fellowship, in an institution approved by the board for three years of training. Application blanks may be obtained from Dr. Hamilton Montgomery, Chairman, Committee on Pathology, American Academy of Dermatology and Syphilology, 200 First St. S. W., Rochester, Minn. The next available appointment begins July 1, 1958. Early application is urged and as a rule applications will not be considered after Sept. 1.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

	Sept. 14, 1957		Sept. 15, 1956
Area	Paralytic Type	Total	Total
New England States			
Maine	..	..	1
New Hampshire	..	..	..
Vermont	..	..	..
Massachusetts	2	6	6
Rhode Island	..	..	1
Connecticut	1	2	10
Middle Atlantic States			
New York	8	14	64
New Jersey	1	4	23
Pennsylvania	..	..	10
East North Central States			
Ohio	4	13	55
Indiana	15	26	27
Illinois	5	25	107
Michigan	7	43	71
Wisconsin	1	12	50
West North Central States			
Minnesota	2	2	23
Iowa	4	10	59
Missouri	1	1	54
North Dakota	..	..	..
South Dakota	2	5	3
Nebraska	1	3	11
Kansas	..	2	21
South Atlantic States			
Delaware	..	..	4
Maryland	1	1	1
District of Columbia	5	6	1
Virginia	3	4	17
West Virginia	1	4	8
North Carolina	..	5	27
South Carolina	2	5	6
Georgia	1	2	8
Florida	1	6	17
East South Central States			
Kentucky	..	4	4
Tennessee	1	4	5
Alabama	1	1	3
Mississippi	..	1	18
West South Central States			
Arkansas	1	1	9
Louisiana	2	6	27
Oklahoma	..	2	14
Texas	5	17	42
Mountain States			
Montana	..	..	1
Idaho	..	3	15
Wyoming	..	..	..
Colorado	1	7	12
New Mexico	..	1	7
Arizona	..	..	1
Utah	..	..	9
Nevada	..	..	..
Pacific States			
Washington	..	..	13
Oregon	..	..	10
California	11	34	95
Territories and Possessions			
Alaska	..	..	..
Hawaii	..	..	..
Puerto Rico	..	..	5
Total	90	282	975

CORRECTIONS

Dr. Rosenblum Goes to North Carolina.—Concerning the news item under this heading in The Journal Aug. 17, page 1827, Dr. Bernard F. Rosenblum has written that the following part of the item was erroneous: "He will also serve as associate professor of public health administration in the School of Hygiene and Public Health at the University of North Carolina, Chapel Hill, and as associate professor of medicine at Duke University, Durham."

Recurring Infectious Thrombophlebitis.—In the Query and Minor Note "Recurring Infectious Thrombophlebitis," The Journal, Aug. 17, 1957, page 1857, in the third paragraph, "either Parenzyme or Chymar, 5 Gm. daily for a series of 10 treatments" should have read, "either Parenzyme or Chymar, 5 mg. daily for a series of 10 treatments." This may be given as one dose daily or may be divided into two doses of 2.5 mg. each. In some extreme cases, it may be given in doses of 2.5 mg., four times a day, but, in the average case, 5 mg. daily should be effective.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 17-19. Sec., Dr. D. G. Gill, State Office Building, Montgomery 4.

Arizona:* *Examination and Reciprocity.* Phoenix, Oct. 16-18. Exec. Sec., Mr. Robert Carpenter, 826 Security Bldg., Phoenix.

Arkansas:* *Examination and Reciprocity.* Little Rock, Nov. 7. Sec., Dr. Joe Verser, Harrisburg.

California: *Written Examination.* Sacramento, Oct. 21-24. *Oral Examination.* San Francisco, Nov. 16. *Oral and Clinical for Foreign Graduates.* San Francisco, Nov. 17. Sec., Dr. Louis E. Jones, 1020 N St., Sacramento 14.

Colorado:* *Examination.* Denver, Dec. 3-4. Exec. Sec., Mrs. Beulah H. Hudgens, 715 Republic Bldg., Denver 2.

Connecticut:* *Examination.* Hartford, Nov. 12-14. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven.

Delaware: *Examination.* Dover, Jan. 14-16. *Reciprocity.* Dover, Jan. 23. Dr. Joseph S. McDaniel, Professional Bldg., Dover.

District of Columbia:* *Examination.* Washington, Nov. 12-13. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington, D. C.

Florida:* *Examination.* Miami, Nov. 24-26. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Idaho: *Examination and Reciprocity.* Boise, Jan. 13-15. Ex. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Iowa:* *Examination.* Des Moines, Dec. 2-4. Exec. Sec., Mr. Donald V. Saf, State Office Building, Des Moines 19.

Kentucky: *Examination.* Louisville, Dec. 9-11. Sec., Dr. Russell E. Teague, 620 South Third St., Louisville 2.

Maine: *Examination.* Portland, Nov. 12-14. *Reciprocity.* Portland, Nov. 12. Sec., Dr. Adam P. Leighton, 142 High St., Room 514, Portland.

Maryland: *Reciprocity.* Baltimore, September. *Examination.* Baltimore, Dec. 10-13. Sec., Dr. Frank K. Morris, 1211 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, Jan. 14-17. Sec., Dr. Robert C. Cochrane, 37 State House, Boston.

Minnesota:* *Examination and Reciprocity.* Minneapolis, Oct. 15-17. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

Nebraska:* *Examination.* Omaha, June. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

New Jersey: *Examination.* Trenton, Oct. 15-18. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 18-19. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York and Syracuse, Dec. 10-13. Sec., Dr. Stiles D. Ezell, 23 South Pearl St., Albany 7.

North Dakota: *Examination.* Grand Forks, Jan. 9-12. *Reciprocity.* Grand Forks, Jan. 12. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, Dec. 17-19. Dr. H. M. Platter, 21 W. Broad St., Columbus 5.

Oklahoma: *Examination.* Oklahoma City, Dec. 14-15. Sec., Dr. E. L. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination.* Portland, January. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

South Carolina: *Examination.* Columbia, Dec. 10. Sec., Dr. H. E. Jarvey, Jr., 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 21-22. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas:* *Examination and Reciprocity.* Fort Worth, Dec. 5-7. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July 9-11. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: *Reciprocity.* Richmond, Dec. 4. *Examination.* Richmond, Dec. 5-7. Address: Office of the Secretary, 631 First St., S.W., Roanoke.

Washington:* *Examination.* Seattle, Jan. 13-15. Sec., Mr. Thomas A. Carter, Capitol Bldg., Olympia.

West Virginia: *Examination.* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:* *Reciprocity.* Madison, Oct. 18. *Examination.* Madison, January. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Alaska:* On application in Anchorage and Juneau. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: *Subject to Call.* Act. Sec., Dr. S. F. Provencher, Agana.

Hawaii: *Examination.* Honolulu, Jan. 13-14. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Virgin Islands: *Examination.* St. Thomas, Nov. 13. Sec., Dr. Earle M. Rice, Charlotte Amalie, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

District of Columbia: *Examination.* Washington, Oct. 21-22. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington, D. C.

Florida: *Examination.* Gainesville, Nov. 9. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

New Mexico: *Examination.* Santa Fe, Oct. 20. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

South Dakota: *Examination.* Vermillion, Dec. 6-7. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: *Examination.* Austin, Oct. 18-19. Chief Clerk, Miss Pearl A. Barrera, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Milwaukee, Dec. 7. Sec., Mr. William H. Barber, 621 Ransom St., Ripon.

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*Basic Science Certificate required.

GOVERNMENT SERVICES

VETERANS ADMINISTRATION

Increased Compensation for Veterans.—Public Law 85-168 authorizes for more than 2 million disabled veterans higher compensation checks for service-connected disabilities, starting with checks mailed out at the end of October, 1957, the Veterans Administration said on Aug. 27.

Veterans already on the VA's compensation rolls need take no action to get the raise. It will be paid automatically. Also increased will be the special allowances for dependents of paid veterans whose service-connected disabilities are rated at 50% or more. With a few exceptions, the increase will be about 10% across the board, except for totally disabled veterans rated at 100%, whose boost from $181 to $225 per month amounts to 24.3%.

TABLE 1.—*Old and New Wartime Compensation Rates*

	Service-connected Disability, %	Wartime Rate*	
		Old, $	New, $
(a)	10	17	19
(b)	20	33	36
(c)	30	50	55
(d)	40	66	73
(e)	50	91	100
(f)	60	109	120
(g)	70	127	140
(h)	80	145	160
(i)	90	163	179
(j)	Total disability	181	225
(k)	Anatomic loss, or loss of use, of a creative organ, or 1 foot, or 1 hand, or both buttocks, or blindness of 1 eye, having only light perception, rates (a) to (j) increased monthly by	47	47
	Anatomic loss, or loss of use, of a creative organ, or 1 foot, or 1 hand, or both buttocks, or blindness of 1 eye, having only light perception, in addition to requirement for any rates in (l) to (n), rate increased monthly for each loss, or loss of use of, by	47†	47‡
(l)	Anatomic loss, or loss of use, of both hands, or both feet, or 1 hand and 1 foot, or blind both eyes with 5/200 visual acuity or less, or is permanently bedridden or so helpless as to be in need of regular aid and attendance, monthly compensation	279	309
(m)	Anatomic loss, or loss of use, of 2 extremities at a level, or with complications, preventing natural elbow or knee action with prosthesis in place, or suffered blindness in both eyes, rendering him so helpless as to be in need of regular aid and attendance, monthly compensation	329	359
(n)	Anatomic loss of 2 extremities so near shoulder or hip as to prevent use of prosthetic appliance, or suffered anatomic loss of both eyes, monthly compensation	371	401
(o)	Suffered disability under conditions which would entitle him to 2 or more rates in (l) to (n), no condition being considered twice, or suffered total deafness in combination with total blindness with 5/200 visual acuity or less, monthly compensation	420	450
(p)	In event disabled person's service-incurred disabilities exceed requirements for any of rates prescribed, Administrator, in his discretion, may allow next higher rate, or intermediate rate, but in no event in excess of	420	450
(q)	Minimum rate for arrested tuberculosis	67	67

* Compensation for disabilities incurred under non-extrahazardous conditions during peacetime are 80% of the wartime rate.

† But in no event to exceed $420 in combination with other applicable ratings.

‡ But in no event to exceed $450 in combination with other applicable ratings.

Unchanged are three statutory rates, two of them at $47 each, involving the anatomic loss, or loss of use, of one part of the body, and the third, at $67 as the minimum rate for arrested tuberculosis. These rates may be payable in addition to the percentage ratings for service-connected disabilities.

Compensation rates payable to veterans whose service-connected disabilities were suffered during peacetime service under non-extrahazardous conditions are 80% of the new wartime rate. Peacetime service disabilities suffered under extrahazardous conditions may be payable at the wartime rates.

Not affected by the increase are the compensation rates paid survivors of veterans whose deaths were service-connected, nor pensions paid wartime veterans or their widows or children for non-service-connected disability or death.

Both old and new wartime rates of compensation paid to veterans for service-connected disabilities are shown in table 1.

Allowances for Dependents.—Veterans whose service-connected disabilities are rated at 50% or more are entitled to additional compensation for dependents.

TABLE 2.—*Additional Disability Compensation for Dependents*

Dependency	Wartime Rate*	
	Old, $	New, $
Wife and		
No children	21	23
1 child	35	39
2 children	45.50	50
3 or more children	56	62
No wife and		
1 child	14	15
2 children	24.50	27
3 or more children	35	39
Dependent parents		
1	17.50	19
2	35	38

* If the disability was incurred under non-extrahazardous conditions during peacetime, additional compensation for dependents is 80% of the wartime rate.

Both the old and new wartime rates are listed in table 2; they are based on 100% disability. The rates for 50% or more are payable at the same ratio that the degree of disability bears to 100%.

Personal.—Dr. Frank J. Schaffer, chief, physical medicine and rehabilitation service, VA Medical Teaching Group Hospital, Memphis, Tenn., has been appointed chief of program development in the same service at Washington, D. C. Dr. Schaffer is certified by the American Board of Physical Medicine and Rehabilitation. He joined the VA in September, 1946, and has served at VA Hospitals in Fort Lyon, Colo., Fort Thomas, Ky., Columbia, S. C., and at the VA regional office in Albuquerque, N. Mex. Among his responsibilities in Washington will be the further development of the career residency program in physical medicine and rehabilitation, which is the second largest career residency program in the VA.

DEATHS

Hassett, Florence Sullivan ⊕ Elmira, N. Y.; born in Elmira, Sept. 28, 1903; University of Rochester School of Medicine and Dentistry, Rochester, N. Y., 1929; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; past-president of the Chemung County Medical Society; past-president of the medical conference of Rochester Regional Hospitals Council; clinical instructor in medicine at his alma mater; attending physician and physician in charge of electrocardiographic laboratory. Arnot-Ogden Memorial Hospital; consulting physician, past-president of staff, and director of postgraduate education program, St. Joseph's Hospital; consulting physician and member of medical advisory board, Veterans Administration Hospital in Bath; past medical director and president of board of managers, Chemung County Sanatorium; died suddenly, July 6, aged 53, of dissecting aneurysm of the aorta.

Alter, Robert Leonhardt ⊕ Toledo, Ohio; born in Toledo March 8, 1913; Duke University School of Medicine, Durham, N. C., 1937; certified by the National Board of Medical Examiners; specialist certified by the American Board of Obstetrics and Gynecology; interned at the Johns Hopkins Hospital in Baltimore, where he served a residency at the Baltimore City Hospital; formerly a resident in obstetrics and gynecology at the Duke Hospital in Durham, N. C., and instructor in obstetrics and gynecology at his alma mater, where he was later assistant professor of obstetrics and gynecology; formerly professor and head of the department of obstetrics and gynecology at the American University of Beirut School of Medicine in Lebanon; fellow of the International College of Surgeons and the American College of Surgeons; died in Modesto, Calif., Aug. 7, aged 44.

Hawley, Sydney James ⊕ Seattle; born in Seattle Sept. 28, 1899; University of Pennsylvania School of Medicine, Philadelphia, 1924; formerly clinical assistant professor of Radiology, University of Washington School of Medicine; certified by the National Board of Medical Examiners; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America, of which he was president-elect and member of the board of chancellors of the American College of Radiology; past-president of the Pacific Northwest Radiological Society; formerly vice president of the American Registry of X-Ray Technicians; served on the staff of the Geisinger Memorial Hospital in Danville, Pa.; died in the Swedish Hospital July 29, aged 57, of coronary occlusion.

Breitstein, Moses Lewis, Baltimore; born in Richmond, Va., Nov. 18, 1894; Johns Hopkins University School of Medicine, Baltimore, 1919; specialist certified by the American Board of Otolaryngology; an associate member of the American Medical Association; fellow of the American College of Surgeons; an otologist for the city health department; consultant in otology for the Maryland State Department of Education; president of the Baltimore Hearing Society; associated with the Hospital for Women of Maryland, the Baltimore Eye, Ear and Throat Hospital, and the Union Memorial Hospital, where he died July 20, aged 62, of coronary heart disease.

Card, Daniel Parker, Colonel, U. S. Army, retired, Washington, D. C.; born in Smyrna, N. Y., July 29, 1878; University and Bellevue Hospital Medical College, New York City, 1904; fellow of the American College of Surgeons; service member of the American Medical Association; veteran of World War I; entered the medical corps of the U. S. Army in 1909 and retired July 1942; held the Legion of Merit; a Chevalier of the French Legion of Honor; decorated by Poland, Italy, and Serbia; for three years chief physician at Virginia Military Institute, Lexington, Va.; died in the Walter Reed Army Hospital July 24, aged 78, of cancer.

Ryan, Frank Kevan, Plattsburgh, N. Y.; born in Plattsburgh Dec. 12, 1890; George Washington University School of Medicine, Washington, D. C., 1916; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; past president of the Clinton County Medical Society; during World War I a surgeon with the British Expeditionary Forces and later served with the U. S. Army Medical Corps overseas for 16 months; a member of the staff of the Physicians Hospital; served on the staff of the Champlain Valley Hospital, where he died July 18, aged 66.

Garr, Charles Crain, Lexington, Ky.; Hospital College of Medicine, Louisville, 1907; specialist certified by the American Board of Orthopedic Surgery; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; an associate member of the American Medical Association; fellow of the American Col-

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⊕ Indicates Member of the American Medical Association.

lege of Surgeons; veteran of World War I; formerly chief surgeon for the Chesapeake and Ohio Railway; on the staff of the Good Samaritan Hospital and St. Joseph Hospital, where he died July 28, aged 72, of acute gangrenous cholecystitis.

Burg, Fred Allan ⊛ Sanger, Calif.; University of Oklahoma School of Medicine, Oklahoma City, 1939; served an internship and residency at the General Hospital of Fresno County in Fresno; for three years on the board of governors of the Fresno County Medical Society; formerly member of the city council; served on the staffs of the Fresno Community and Valley Children's hospitals in Fresno and the Sanger Hospital; died Aug. 8, aged 41, of coronary occlusion.

Arndt, Oscar H., Detroit; Detroit College of Medicine, 1906; died July 11, aged 78, of coronary thrombosis and arteriosclerotic heart disease.

Bayliss, George William, Martinsburg, W. Va.; College of Physicians and Surgeons, Boston, 1906; died in the City Hospital May 28, aged 83, of acute coronary disease.

Bentz, George Henry, Saugerties, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1903; died May 6, aged 75, of carcinoma of the mouth with metastases.

Berg, Albert Page ⊛ Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; served in France during World War I; died July 20, aged 78, of abdominal carcinomatosis.

Biggs, Ray Hoyt ⊛ Sanatorium, Miss.; Emory University School of Medicine, Atlanta, 1933; member of the American Trudeau Society; at one time health officer of Madison County; formerly assistant superintendent and medical director of the Mississippi State Tuberculosis Sanatorium; died July 12, aged 50, of emphysema and cor pulmonale.

Blackburn, Arthur Dale ⊛ Circleville, Ohio; Miami Medical College, Cincinnati, 1902; retired July 1, 1936 as Pickaway County health commissioner; died July 17, aged 77, of acute pulmonary edema.

Blumstein, David Barnett, Miami Beach, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; formerly practiced in New York City; died in the Mount Sinai Hospital July 21, aged 74, of acute myocardial infarction.

Bresky, Hillard, Rego Park, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1924; member of the Medical Society of the State of New York; died Aug. 2, aged 58, of cancer.

Bussell, Benjamin Randolph ⊛ Waycross, Ga.; Atlanta College of Physicians and Surgeons, 1911; past president of the Ware County Medical Society; for many years chief anesthetist at Ware County Hospital; died in the Memorial Hospital July 14, aged 72, of cerebral thrombosis.

Carryer, Carl Haddon ⊛ Des Moines, Iowa; Barnes Medical College, St. Louis, 1902; chief of staff, Booth Memorial Hospital; on the staffs of the Iowa Lutheran and Mercy hospitals, and the Iowa Methodist Hospital, where he died July 20, aged 76.

Cohen, David, Louisville, Ky.; Kentucky University Medical Department, Louisville, 1903; an associate member of the American Medical Association, served in France during World War I; on the courtesy staffs of Kentucky Baptist Hospital, St. Joseph Infirmary, Jewish Hospital, and Norton Memorial Infirmary, where he died July 27, aged 74, of hypertensive cardiovascular disease.

Corrington, Dale Donatus, Tallassee, Ala.; Rush Medical College, Chicago, 1924; member of the Medical Association of Alabama; veteran of World War I; on the staff of the Community Hospital in East Tallassee, where he died July 21, aged 59, of chronic nephritis and uremia.

Crispo, Pierre Timothy ⊛ Fall River, Mass.; Laval University Faculty of Medicine, Quebec, Quebec, Canada, 1893; formerly school physician; for 12 years served on the board of health, the last six years as chairman; on the staff of St. Anne's Hospital; died in the Truesdale Hospital July 22, aged 85, of cerebral thrombosis.

Delagoa, Arthur Clark, San Antonio, Texas; University of Texas School of Medicine, Galveston, 1932; died July 21, aged 47, of peritonitis and enterocolitis.

Denham, Thomas William, Visalia, Calif.; Kentucky University Medical Department, Louisville, 1905; died in Tulare July 1, aged 74, of myocardial infarction.

Donker, Adrian Edward, Carrington, N. D.; Grand Rapids (Mich.) Medical College, 1907; died in the Carrington Hospital July 29, aged 75, of gastrointestinal hemorrhage.

Emerson, William Joseph ⊛ Laredo, Texas; George Washington University School of Medicine, Washington, D. C., 1944; certified by the National Board of Medical Examiners; chief of staff and director of pathology at Mercy Hospital; died July 5, aged 40.

English, Kinsey Ourant ⊛ Chicago; Rush Medical College, Chicago, 1930; member of the American Academy of General Practice; veteran of World War I; on the executive medical staff, West Surban Hospital, Oak Park, Ill., where he died Aug. 6, aged 62, of acute coronary disease.

Eveleth, George S., Newport, N. H.; Bellevue Hospital Medical College, New York City, 1888; member of the Medical Society of the State of New

York; an associate member of the American Medical Association; formerly practiced in Little Falls, N. Y., where he was on the staff of the Little Falls Hospital; died July 22, aged 92.

Fuller, Martin Luther, Abilene, Texas; Baylor University College of Medicine, Dallas, 1908; formerly director of the Laredo-Webb County Health Department; died July 19, aged 79, of cerebral hemorrhage.

Furby, Robert Ludwick, Vancouver, Wash.; University of Illinois College of Medicine, Chicago, 1913; died July 24, aged 72, of coronary occlusion and hypertensive cardiovascular disease.

Fuson, Carl Campbell ⊕ Milliken, Colo.; Denver and Gross College of Medicine, 1910; served in France during World War I; on the staff of the Weld County General Hospital, where he died July 16, aged 78.

Galloway, Fletcher Wilson ⊕ Florala, Ala.; Memphis (Tenn.) Hospital Medical College, 1903; died July 10, aged 84, of a heart attack.

Gilliland, Alvin Orrin, Cameron, Mo.; Kansas City (Mo.) Medical College, 1903; died July 17, aged 78, of coronary thrombosis.

Gottschalk, Clara Grace ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1915; died July 21, aged 74, of acute pulmonary edema and arteriosclerotic heart disease.

Grundset, Ole J. ⊕ Montrose, Minn.; College of Medical Evangelists, Loma Linda and Los Angeles, 1927; died June 30, aged 70.

Halbrook, John Franklin, Morrilton, Ark.; Memphis (Tenn.) Hospital Medical College, 1902; past-president of the Conway County Medical Society; veteran of World War I; died in Veterans Administration Hospital, North Little Rock, June 18, aged 83, of cerebral thrombosis and arteriosclerosis.

Hopkins, Richard Thomas ⊕ Orofino, Idaho; Cornell University Medical College, New York City, 1909; served on the staff of the Orofino Hospital; died in Portland, Ore., July 29, aged 74, of cancer.

Hopson, George ⊕ De Soto, Mo.; University of Tennessee College of Medicine, Memphis, 1931; member of the American Academy of General Practice; formerly associated with the Indian Service; veteran of World War II; died July 4, aged 53.

Infield, Gerald Lee ⊕ Northfield, N. J.; Hahnemann Medical College and Hospital, Philadelphia, 1933; health officer; since 1948 mayor; veteran of World War II; medical director of the Atlantic County Hospital for Mental Diseases; died in Atlantic City July 31, aged 51, of congestive heart failure.

Ivanov, Christine Jan, Milwaukee; Marquette University School of Medicine, Milwaukee, 1953; served a residency at the Milwaukee County Hospital for Mental Diseases at Wauwatosa; died July 31, aged 43, of pulmonary embolism following thrombophlebitis of left lower extremity.

Keenan, Maurice Edward, Circle, Mont.; University of Colorado School of Medicine, Denver, 1942; veteran of World War II; died July 16, aged 41, of coronary thrombosis.

Klar, Jacob Joseph ⊕ Springfield, Mass.; College of Physicians and Surgeons, Boston, 1935; died in the Wesson Memorial Hospital Aug. 3, aged 55, of coronary thrombosis.

Kroener, William Frederick Sr., Pebble Beach, Calif.; Rush Medical College, Chicago, 1925; certified by the National Board of Medical Examiners; an associate member of the American Medical Association; veteran of World War I; past president of the Whittier Kiwanis Club and the high school board of Whittier; died in the Peninsula Community Hospital, Carmel, July 16, aged 66, of arteriosclerosis.

Lieberman, Louis James ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1922; veteran of World War II; associated with Mount Sinai, Polyclinic and Woman's hospitals; died July 26, aged 59, of a heart attack.

Lipkin, Harry ⊕ New York City; College of Physicians and Surgeons, Baltimore, 1914; died July 20, aged 66, of carcinoma of the left superior maxillary antrum.

Lurting, Clarence Wilbur ⊕ Pittsburgh; College of Physicians and Surgeons, Baltimore, 1903; on the staff of St. John's General Hospital; died in the Allegheny General Hospital July 22, aged 82, of coronary occlusion.

Lynch, Daniel Webster, Miami, Fla.; Northwestern University Medical School, Chicago, 1905; veteran of World War I; died June 6, aged 78, of pulmonary embolism.

McCurdey, Neil Augustus, Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1896; died May 17, aged 85, of acute coronary insufficiency.

McMann, William Henry ⊕ Boston; Harvard Medical School, Boston, 1900; died in the Carney Hospital May 21, aged 84, of cerebral hemorrhage.

McNulty, John Benjamin ⊕ Memphis, Tenn.; Washington University School of Medicine, St. Louis, 1909; served on the staff of St. Joseph Hospital; died July 18, aged 78.

Mackin, M. Charles ⊕ Des Moines, Iowa; Baltimore Medical College, 1891; Chicago Homeopathic Medical College, 1893; served as superintendent of the

Mount Pleasant (Iowa) State Hospital; died in St. Bernard's Hospital, Council Bluff, July 18, aged 91, of cerebral hemorrhage.

Malloy, Henry Darius, Winston-Salem, N. C.; Leonard Medical School, Raleigh, 1910; honorary staff member of Kate Bitting Reynolds Memorial Hospital; died July 28, aged 72.

Marble, Perley Leonidas ⊕ Liscomb, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1899; Hahnemann Medical College and Hospital of Philadelphia, 1906; on the staff of the Evangelical Hospital, Marshalltown, where he died June 19, aged 85, of coronary disease.

Marcus, Samuel Jerome, Pittsburgh; University of Pittsburgh School of Medicine, 1909; an associate member of the American Medical Association; died in the Mercy Hospital July 25, aged 70.

Mayer, Benjamin Harrison ⊕ Ellsworth, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1911; member of the American Society of Anesthesiologists; veteran of World War I; died July 17, aged 69.

Messer, George Frederick, Milwaukee; Kansas City (Mo.) Medical College, 1892; died July 2, aged 86.

Mikesch, William Henry ⊕ South Bend, Ind.; St. Louis University School of Medicine, 1913; for six years deputy county coroner; veteran of World War I; died in St. Joseph's Hospital June 25, aged 74, of cerebral vascular thrombosis.

Mitchell, Paul Hayne, Ahoskie, N. C.; University College of Medicine, Richmond, 1907; on the staff of the Ranoke-Chowan Hospital, where he died July 24, aged 71, of cerebral hemorrhage.

Moore, George W. ⊕ Bay City, Mich.; Milwaukee Medical College, 1898; past-president of the Bay County Medical Society; for many years health officer of Bay City; on the emeritus staffs, Mercy and General hospitals; died July 15, aged 89, of cerebral thrombosis.

Moore, Jesse McGough, Princeton, Ky.; Hospital College of Medicine, Louisville, 1901; an associate member of the American Medical Association; past-president of the Caldwell County Medical Society; on the staff of the Caldwell County War Memorial Hospital; for many years surgeon for the Illinois Central Railroad; died July 22, aged 81, of chronic myocarditis and arteriosclerosis.

Moore, Joseph Leslie, Brooklyn; University of Pennsylvania Department of Medicine, Philadelphia, 1905; an associate member of the American Medical Association; served on the faculty of the Long Island College of Medicine; veteran of World War I; during World War II a Selective Service examiner; consultant in medicine at the Brooklyn Hospital, where he died July 18, aged 80, of gastric ulcer and peritonitis.

Mueller, Clive Paul, Lieut. Col., U. S. Army, retired, San Antonio, Texas; Northwestern University Medical School, Chicago, 1916; service member of the American Medical Association; veteran of World War I; entered the medical corps of the U. S. Army in 1918 and retired July 1937; died May 30, aged 68, of fracture of the hip and Parkinson's disease.

Myers, Henry F. ⊕ Lancaster, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; formerly member of the city board of education; for many years on the staff of the Rossmere Sanatorium; died July 20, aged 87, of cerebral arteriosclerosis.

Nark, John Aloysius, Philadelphia; Temple University School of Medicine, Philadelphia, 1927; staff member, St. Mary's Hospital; died July 27, aged 55, of carcinoma of the liver.

Newbury, Nelson Edwards, Atlantic City, N. J.; New York University Medical College, New York City, 1897; died in Atlantic City Hospital July 20, aged 82, of uremia and arteriosclerotic heart disease.

Niederwimer, John Stevens, St. Louis; St. Louis University School of Medicine, 1943; interned at St. Louis County Hospital in Clayton, where he served a residency; served a residency at the Robert Koch Hospital in Koch, Mo.; died July 14, aged 38.

Notkins, Louis Adolph, New Haven, Conn.; Yale University School of Medicine, New Haven, 1903; served on the faculty of his alma mater; veteran of World War I; neurologist consultant for the Veterans Administration; died in the Gaylord Farm, Wallingford, July 21, aged 81.

Nulton, Ida May ⊕ Lancaster, Mo.; Keokuk (Iowa) Medical College, 1898; died in St. Joseph's Hospital, Centerville, Iowa, July 13, aged 91, of uremia.

O'Bar, Oliver, Fort Lauderdale, Fla.; Medical Department of Tulane University of Louisiana, New Orleans, 1899; for many years practiced in St. Louis; died July 25, aged 82, of cerebral hemorrhage.

O'Neill, Edward Daniel, Sacramento, Calif.; Louisville (Ky.) and Hospital Medical College, 1908; veteran of World War I; died in the Mercy Hospital July 18, aged 79, of cerebral thrombosis.

Osborn, Alfred Shaffer ⊕ McAllen, Texas; University of Texas School of Medicine, Galveston, 1934; past-president and secretary of the Hidalgo-Starr Counties Medical Society; on the staff of the McAllen Municipal Hospital; accidentally electrocuted July 7, aged 45.

Pennington, Henry Z., Eldorado, Texas (licensed in Texas, under the Act of 1907); died in Memorial Hospital, San Angelo, July 23, aged 90, of carcinoma of the prostate and arteriosclerotic heart disease.

Porterfield, William Lowrie ⊕ McClure, Ill.; Rush Medical College, Chicago, 1902; for many years practiced in Chicago, where he was on the faculty of Loyola University School of Medicine and on the staff of St. Bernard Hospital; died in Baltimore July 20, aged 77, of bronchopneumonia and prostatic adenocarcinoma with metastases.

Price, Alfred Stirgus ⊕ Des Moines, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; veteran of the Spanish-American War and World War I; served as chairman of the Polk County Sanitary Commission and county physician; on the staffs of Mercy Hospital and Iowa Methodist Hospital where he died July 18, aged 77.

Price, William Harrison, Shelter Island Heights, N. Y.; Pulte Medical College, Homeopathic, Cincinnati, 1903; for many years practiced in Brooklyn, where he was on the staffs of the Prospect Heights and Peck Memorial hospitals; died July 19, aged 80, of uremia.

Ramage, Chesney Macauley, Fairmont, W. Va.; Johns Hopkins University School of Medicine, Baltimore, 1910; an associate member of the American Medical Association; fellow of the American College of Surgeons; during World War I medical member of the Fairmont draft board; formerly superintendent of the Fairmont Emergency Hospital; on the staff of the Fairmont General Hospital; died July 12, aged 73, of coronary thrombosis.

Rathman, Omer Charles ⊕ Billings, Mont.; University of Michigan Medical School, Ann Arbor, 1926; fellow of the American College of Surgeons; veteran of World War II; on the staffs of the Billings Deaconess and St. Vincent's hospitals; died July 12, aged 55, of coronary occlusion.

Raynolds, Elmer L. ⊕ Lincoln, Neb.; Eclectic Medical University, Kansas City, Mo., 1901; Kansas City (Mo.) College of Medicine and Surgery, 1916; also a pharmacist, member of the Kansas Medical Society; for many years practiced in Mankato, Kan.; served as health officer of Jewell County, Kan.; died July 28, aged 88, of cerebral hemorrhage.

Rees, Kendall Brooks, Coldwater, Mich.; Detroit College of Medicine, 1912; on the staff of the Coldwater State Home and Training School; died in the Butterworth Hospital, Grand Rapids, June 20, aged 72, of carcinoma.

Remillard, Joseph Laury, Rouses Point, N. Y.; School of Medicine and Surgery of Montreal, Que., Canada, 1897; formerly associated with the U. S. Public Health Service and served as health officer for the village of Rouses Point; died May 22, aged 84, of pneumonia.

Richman, Barash ⊕ Chicago; Chicago Medical School, 1930; field health officer for the Chicago Board of Health; served on the Garfield Park Community Hospital; died in South Haven, Mich., Aug. 3, aged 68, of cerebral hemorrhage.

Samuels, John Goodwin ⊕ Hickman, Ky.; University of Tennessee College of Medicine, Memphis, 1934; member of the American Academy of General Practice and the Industrial Medical Association; president of the Fulton County Medical Society; vice-president of the medical staff, Obion County General Hospital, Union City, Tenn.; died July 14, aged 47, of coronary thrombosis.

Savedoff, William M. ⊕ New York City; Friedrich–Wilhelms–Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1914; associated with Morrisania, and Flower and Fifth Avenue hospitals and the Bronx Hospital, where he died July 23, aged 70, of myocarditis.

Schaefer, Otto ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1894; fellow of the American College of Surgeons; died in Leesburg, Fla., July 1, aged 89, of heart disease.

Scheffer, Carl Julius, West Palm Beach, Fla.; University of Pittsburgh School of Medicine, 1912; died June 14, aged 72, of coronary thrombosis.

Schwab, Frederick, Cedar Rapids, Iowa; Drake University College of Medicine, Des Moines, 1906; died July 7, aged 82, of congestive heart failure.

Sharon, Isaac Paul ⊕ Middlebury, Vt.; University of Vermont College of Medicine, Burlington, 1909; on the staff of the Porter Memorial Hospital; died July 17, aged 77, of congestive cardiac failure.

Shaw, Arthur John, Boston; Harvard Medical School, Boston, 1894; served on the staffs of the St. Elizabeth's Hospital, Massachusetts Eye and Ear Infirmary, and the Children's Medical Center; died in Hull, Mass., July 18, aged 85, of cancer.

Shirley, Carl Wilson ⊕ Houston, Texas; University of Texas School of Medicine, Galveston, 1925; served on the faculty of the Baylor University College of Medicine; veteran of World War II; on the staffs of the Memorial and Hermann hospitals; died July 25, aged 59, of coronary occlusion.

Sidener, Thomas Taylor ⊕ Lima, Ohio; Eclectic Medical Institute, Cincinnati, 1906; died in the Lima Memorial Hospital May 23, aged 90.

Sierakowski, Chester Steven, McKees Rocks, Pa.; University of Pittsburgh School of Medicine, 1910; died in the Presbyterian Hospital, Pittsburgh, June 29, aged 69, of cancer.

Smith, Jesse T., Gamaliel, Ky.; University of Tennessee Medical Department, Nashville, 1895; a member of the county board of health; veteran of World War I; died June 23, aged 90.

Spengler, Frank B., Baldwinsville, N. Y.; Syracuse University College of Medicine, 1906; an associate member of the American Medical Association; served as school physician; died July 16, aged 75, of heart disease.

Sprague, Buell H. ⊕ Los Angeles; Sioux City (Iowa) College of Medicine, 1908; member of the American Academy of General Practice; fellow of the American College of Surgeons; in 1918 member of the House of Delegates of the American Medical Association; on the staffs of St. Joseph's Hospital in Burbank, Calif., and the Hollywood Presbyterian Hospital; died July 14, aged 71, of coronary disease.

Steinfuehrer, Gotthold, Chicago; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1921; died in Vermontville, Mich., June 28, aged 70, of pneumonia and heart disease.

Stone, John Boyd ⊕ Churchville, Va.; University of Virginia Department of Medicine, Charlottesville, 1912; died July 20, aged 71, of coronary occlusion.

Swenson, Leonard Carl ⊕ Freeport, N. Y.; Vanderbilt University School of Medicine, Nashville, Tenn., 1939; died June 12, aged 42, of pulmonary fibrosis and hypertension secondary to Marie–Strümpell's arthritis.

Thomas, George Elwin ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; member of the American Academy of General Practice; died in the Asbury Hospital June 10, aged 80.

Thomas, Merrick Dowdell ⊕ Miami, Fla.; Columbia University College of Physicians and Surgeons, New York City, 1904; died in the Doctors Hospital July 9, aged 80, of pneumonia.

Trigg, Franklin Elem ⊕ Guthrie, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; died in the Benedictine Heights Hospital June 15, aged 84, of cirrhosis of the liver.

Turman, George Fugett, Missoula, Mont.; University College of Medicine, Richmond, 1905; an associate member of the American Medical Association; past-president of the Montana Department of Public Health; on the staff of St. Patrick Hospital, where he died July 12, aged 74, of carcinoma of the prostate.

Turner, Clifton Sherwood ⊕ Peoria, Ill.; University of Cincinnati College of Medicine, 1920; past-president of the Peoria County Medical Society; member and past-president of the staff, Methodist Hospital; died July 9, aged 62, of arteriosclerotic heart disease.

Turner, Wylie Erasmus Jr. ⊕ Piggott, Ark.; University of Tennessee School of Medicine, Memphis, 1939; member of the American Academy of General Practice; served during World War II; a member of the staff of Piggott Hospital; died July 9, aged 43.

Veech, Annie S., Louisville, Ky.; Woman's Medical College of Pennsylvania, Philadelphia, 1909; in June, 1956, received the achievement award of the alumnae association of her alma mater; first director of the Bureau of Maternal and Child Hygiene in Louisville; died in the Pee Wee Valley Hospital July 10, aged 86.

Wasilewski, Joseph Thomas ⊕ Coatesville, Pa.; Temple University School of Medicine, Philadelphia, 1928; associated with the Veterans Administration Hospital; died in the Temple University Hospital, Philadelphia, June 27, aged 55.

Webb, Enoch Palmer ⊕ Beaver Dam, Wis.; Rush Medical College, Chicago, 1897; died in the Lutheran Hospital June 4, aged 86.

Weber, William Donald ⊕ Cleveland; Duke University School of Medicine, Durham, N. C., 1945; certified by the National Board of Medical Examiners; veteran of World War II; member of the American Trudeau Society; resident, University Hospitals; died July 15, aged 37, of acute coronary thrombosis.

Whitaker, William Batchelor, Chicago; Rush Medical College, Chicago, 1897; once on the staff of the Mercy Hospital; veteran of World War I; died in the Veterans Administration Research Hospital July 23, aged 82, of cerebral hemorrhage.

Wilson, William Berry, Colonel, U. S. Army, retired, Redlands, Calif.; St. Louis University School of Medicine, 1926; entered the medical corps of the U. S. Army in 1927; veteran of World Wars I and II; retired April 30, 1946; service member of the American Medical Association; died June 14, aged 59, of coronary thrombosis.

Wohrley, Ivan Charles, Newark, Ohio; Electic Medical College, Cincinnati, 1922; veteran of World War I; served as a medical missionary in West China; died in the University Hospital, Columbus, July 5, aged 62, of coronary infarction.

Worthey, William R. ⊕ Call, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1912; past-president of the Jasper–Newton Counties Medical Society; died July 3, aged 82.

FOREIGN LETTERS

BRAZIL

Drugs Acting on Sphincter of Oddi.—In the Hospital das Clinicas of the University of São Paulo, Drs. A. Raia and C. Horta investigated the action of the following drugs on the sphincter of Oddi: iodinated contrast mediums used in cholangiography, morphine, diphenylhydantoin sodium, atropine, antihistaminic drugs, thiopental sodium, curare, and amyl nitrite. A contrast medium in the biliary ducts may cause hypertension in the common bile duct. This is not related to the amount of fluid injected. In some subjects, antihistaminic drugs, such as promethazine hydrochloride, may reverse the effect of the contrast medium. Morphine in a dose of 10 mg. and diphenylhydantoin in a dose of 50 mg. caused hypertension in the biliary tree. Atropine and scopolamine hydrobromide given intravenously do not relax the sphincter of Oddi and do not change the pressure in the biliary ducts. Amyl nitrite relaxes the sphincter of Oddi. Its action is quick but transient. Thiopental, curare, and promethazine do not change the pressure within the biliary tree and may be used in patients with pathological conditions of the biliary tree in which we wish to perform manometry and cholangiography.

Megacolon and Megarectum.—At a meeting of the Brazilian College of Surgeons, Dr. Azael Leitzner reported a series of 20 rectosigmoidectomies (6 by the abdominal route and 14 by the abdominoperineal route). None of the patients had had a previous colostomy. In 18 a megasigmoid and in 2 a megarectum was found. The follow-up period ranged from 16 days to five years. Good functional results were obtained in 17 of the patients. A perirectal abscess developed in one patient, and in six partial disruption of the anastomosis occurred. The abscess was treated by a colostomy. Disruption of the anastomosis in one patient lead to suprapubic fistula, in three to vaginal fistulas (one with rectal stenosis), in one to perineal fistula, and in one to perineal and vaginal fistula. Of these seven patients with complications, spontaneous cure occurred in one, one was to have reoperation but died before this could be done, and in five a colostomy was performed. In these five the fistula closed; the colostomy was taken down in two patients, in two a fistula persisted, and one died of acute peritonitis with congestive heart failure. There was a late death (78 days after the operation) which was not related to the operation (suicide by starvation in a mental patient). Dr. Leitzner believes that previous or simultaneous colostomy would have prevented the death caused by acute peritonitis in the patient with heart failure, although a colostomy does not always prevent disruption of sutures. In spite of this, he advises colostomy only when there are serious complications, and he advocates rectosigmoidectomy in the treatment of megasigmoid and megarectum, although the operation is a major one and serious complications may occur.

CANADA

Radioactive Cobalt Therapy.—The June, 1957, issue of the *Journal of the Canadian Association of Radiologists* is chiefly devoted to radioactive cobalt (Co^{60}). It is over five years since Co^{60} beam therapy units were first used in Canada. A preliminary report from Saskatoon summarizes the treatment by Co^{60} of 942 patients with malignant disease in a total series of 3,957 patients treated by various forms of radiation therapy. Predictions made five years ago that the new compact powerful sources of Co^{60} would not only supplant radium beam therapy but also compete with x-ray machines in the 2 and 3 megavolt region have come true and have even been surpassed. Teletherapy units are now available with smaller sources of Co^{60} of the order of 500 to 600 curies for use at shorter treatment distances, generally 50 cm. focus-skin distance. An editorial draws attention to the fact that the main advantage of Co^{60} irradiation used for teletherapy lies in the treatment of deep-seated lesions that could hardly ever be treated adequately with conventional x-ray therapy. It is not due to any special virtue of Co^{60} radiation but is related to the greater penetrating power and the scattering in a forward direction of such radiation. Excessive tissue reactions can thus be avoided. It is difficult to determine whether Co^{60} will improve the results in treatment of neoplastic diseases over those obtained by conventional 0.2 to 0.3 megavolt radiation. It is suggested, however, that doses of Co^{60} radiation 15 to 20% greater than those of supervoltage x-radiation will be required to induce the same biological effects.

Heredity Counseling Service.—The faculty of medicine of the University of Alberta has established a heredity counseling service which will provide consultation to persons referred to it by physicians.

The items in these letters are contributed by regular correspondents in the various foreign countries.

This service has been set up as a committee composed of the heads of five clinical departments (medicine, obstetrics, pediatrics, preventive medicine, and psychiatry) and a consultant in genetics. Personal consultations with patients and their families may be arranged when necessary. The object of the service is to give a clear picture to laymen of the genetic principles involved in any case of hereditary or familial disease. By clarifying the genetic picture, the counselor will assist the patient in putting his total problem into perspective so that he may arrive at his own conclusions. It is no part of the duty of the service to give advice concerning future reproductive behavior, which involves not only biological but also religious, economic, and other factors. In addition to its value to patients and practitioners, the service hopes to accumulate some data which will advance knowledge in human genetics and help with the education of medical students. The 1957 graduating class of the faculty of medicine of the University of Alberta is the first class which has had a systematic course in human genetics covering such topics as the physical basis of heredity, statistical probability, simple single-factor inheritance, blood group genetics, the interaction of heredity and environment, the effects of ionizing radiation, and the applications of genetic knowledge to man.

Immunology and the Canadian Indian.—Although the increase in the Indian population of Canada is proceeding more rapidly than the increase in the non-Indian group, there is still a relatively high death rate, and an appreciable amount of morbidity is still due to communicable diseases. An intensive immunization program has been carried out for several years by the Indian and Northern Health Services of the Department of National Health and Welfare of Canada. Combined diphtheria, pertussis, and tetanus antigen has been supplied to every tribe; BCG vaccination has been encouraged and T. A. B. vaccine has been given when thought necessary. Nevertheless, the general immunological status of the nomadic Indian tribes is unsatisfactory, and federal public health officials have therefore recently carried out a survey of 797 Indians distributed throughout Canada. The results (*Canadian M. A. J.* 77:211 [Aug. 1] 1957) show that general immunity to diphtheria is good, for, of 770 serums titrated, 722 had greater than the Schick immune level of 0.004 unit of antitoxin per milliliter. Though protection against tetanus was not so prevalent, it is expected that with the increased use of tetanus toxoid this situation will improve rapidly. The effectiveness of protection against pertussis was difficult to judge. There was a low incidence of both O and H agglutinins of Salmonella paratyphi A and Salmonella paratyphi C but a high incidence of O and H agglutinins of Salmonella typhi and Salmonella paratyphi B. It would seem, therefore, that typhoid and paratyphoid type B are highly endemic among the groups studied and that vaccination against these should be more widely applied among all Indians. The immunological study suggested that Brucella abortus infection is of relatively minor concern in Indian populations, but tularemia seems to be endemic in certain areas.

Research Prizes.—A new type of charitable foundation for research into rheumatic and heart disease has been set up by a Toronto philanthropist, Mr. James A. Gairdner, who has provided an initial capital of $500,000 to establish the Gairdner Foundation which will provide prizes totaling up to $50,000 a year as rewards to medical men for major research contributions. This is an unusual type of foundation in that it does not aim to give grants to investigators but merely to reward their successes. Investigators will be free to use the award money as they see fit. There will be two types of awards. A class A award of $25,000 is to be given at least once every four years to an investigator whose work is distinguished in the field of connective tissue diseases or heart disease. International awards of three to five annual prizes of not less than $3,000 and not more than $10,000 are to be given for outstanding accomplishments in the same fields. A board of trustees has been created, and the physicians-in-chief of the University of Toronto teaching hospitals will serve as a medical advisory committee. It is possible that the scope of the awards may be expanded later to other fields, particularly to degenerative diseases.

Perphenazine, a New Tranquilizer.—In the *Canadian Psychiatric Association Journal* (2:104, 1957) Cahn and Lehmann report a study of perphenazine (Trilafon), an amino derivative of chlorphenothiazine with ataraxic properties. They used the drug for 84 female patients, 26 of whom were undergoing a severe acute psychiatric disturbance and the remainder being mostly chronic schizophrenics. The drug was given intramuscularly and by mouth, the intramuscular dosage ranging from 15 to 60 mg. a day and the oral dosage from 8 to 192 mg. a day. Excitement, hyperactivity, talkativeness, and insomnia were controlled to much the same extent as with chlorpromazine. The drug was not effective in patients with endogenous depression. Perphenazine also proved a potent therapeutic agent in patients with chronic psychoses. Clinical results similar to those with chlorpromazine were obtained with about one-sixth of the dose of the latter. The principal differences from chlorpromazine were that perphenazine is less painful on intramuscular injection and has fewer autonomic and allergic side-effects but causes extrapyramidal symptoms more frequently and earlier than does chlorpromazine, though these symptoms are well controlled by various drugs given for Parkinsonism. This study suggested that perphenazine should not be combined with reserpine or given to obese patients. Otherwise it is a useful and safe therapeutic agent in acute and chronic psychiatric disorders.

Chloroquine in Rheumatoid Disease.—The first long-term (four-year) study of continuous daily treatment with chloroquine by mouth for rheumatoid disease was reported by Bagnall (*Canad. M. A. J.* 77:182 [Aug. 1] 1957). The author is enthusiastic about the results which were studied in 125 private patients, most of whom had classic rheumatoid arthritis although 17 had spondylitis and 10 concomitant psoriasis. There was no difficulty in distinguishing the chloroquine-treated group from the placebo-treated group. In general, the results were considered "good" in 70% of the patients, one-half being in remission. Work performance increased in these patients, the sedimentation rate dropped, and the hemoglobin level rose. Most of these successfully treated patients had received chloroquine therapy for more than two years. All types of rheumatoid disease appeared to respond equally well. Half of the 30% of failures were probably due to toxic reactions that seriously affected the ability to take an adequate dosage. The normal dosage was one 250-mg. tablet of the diphosphate daily at bedtime. Minor toxic effects were common, drug dermatitis being the one most significantly restricting treatment. Hydrochloroquine is under trial as a substitute to try to reduce the incidence of these reactions. There was no agranulocytosis, but leukopenia was noted on six occasions. Chloroquine does not begin to show favorable effects for from 1 to 3 months, and maximum benefit may be delayed 6 to 12 months or even more. The author believes that chloroquine comes closest to the ideal for long-term safe control of rheumatoid disease. The mechanism of action is unknown.

DENMARK

Ultrasonic Treatment.—Dr. Hans Graudal, in *Ugeskrift for Læger* for Aug. 1, noted that, while experimental work has thrown much light on the biological action of ultrasound, clinical tests have failed to show clearly which are the accepted indications for such treatment. This treatment should be based on the fact that ultrasound can produce a deep heating of the tissues with a specific distribution of the rise of temperature. The analgesic effects obtained may also be traced to this. In 43 male and 10 female patients given ultrasonic treatment for hematomas arising in many cases from sport injuries, the size of the hematomas ranged from that of a nut to that of a clenched fist, and in some they were diffuse, extending over the anterior surface of the whole of one thigh. There was no need to extend this treatment beyond a week, and, when the patients were classified according to whether they were treated every day or every other day, the disappearance of the hematomas was found to be about twice as rapid in the former as in the latter group. Undesirable side-effects were not observed.

Hemorrhages from Salicylic Acid.—To investigate the rather vague impression that salicylic acid frequently causes gastrointestinal hemorrhages, Dr. Lis Mellemgaard (*Ugeskrift for læger*, July 18, 1957) reported the findings in a series of 124 patients, excluding those in whom the hemorrhage might have been due to gastric ulcer, cancer, or varicose veins. Of these, 18 had taken large quantities of salicylic acid shortly before admission to the hospital. Attention is drawn to a vicious circle. Taking salicylates leads to mucosal bleeding. The ensuing anemia gives rise to headache which in its turn calls for the taking of more salicylates. Again, the anemia so often associated with chronic diseases of the joints may not always be due to them but may be the outcome of taking salicylates. Because occult gastrointestinal hemorrhages are such a drain on the diagnostic resources of radiologists and others, awareness of the dangers of salicylate medication may often prove helpful.

Driving Licenses for Drug Addicts?—In the period 1949-1955, the health authorities had to deal with 15 cases in which traffic accidents or reckless driving had raised the problem of drug addiction. These were comparatively straightforward cases, in that they were not complicated by the intake of alcohol or by other extraneous circumstances. Drug addiction being so often hushed up, these few cases coming into the open present an incomplete picture of the real dimensions of the problem which is ventilated by Dr. Mogens Nimb in *Ugeskrift for læger* for Aug. 1. The physician countersigning an application for a driving license is not required to ask specifically if the applicant is dependent on drugs other than insulin, but he must certify that the applicant is not suffering from any disease calculated to impair his capacity to drive a car. Most physicians interpret this clause as applicable to drug addiction, but some have ignored this particular risk. In several cases, finding some barbiturate in the blood has determined the issue. When a driver suspected of drug addiction happens to be a physician, the case may be complicated by the possible withdrawal of his right to practice medicine as well as his right to drive a car. In one such case the legal authorities refused to withdraw the doctor's driving license on the plea that as his license to practice medicine had not been withdrawn his right to drive could hardly be challenged —an argument that Nimb refuses to endorse. He foresees that traffic regulations may be invoked to help promote the campaign against drug addiction.

from 0.01 to 0.03% of vanadium, which accumulates in the soot. Some oils, such as Venezuelan, deposit on burning a soot containing 45% vanadium as pentoxide, while Middle Eastern oils contain only a trace. Workers enter the boilers to remove soot that collects on the heat exchanges and walls. This is removed by scraping, and, during the process, clouds of soot containing vanadium are inhaled. The initial symptoms of vanadium poisoning, which come on within 30 minutes of exposure to the dust, are rhinorrhea, sneezing, watering of the eyes, sore throat, and retrosternal pain. The late symptoms, which occur within 6 to 24 hours, include tightness across the chest, wheezing, dyspnea, epigastric pain, and depression. There is also a dark green discoloration of the tongue. The symptoms last for a few days after exposure. Vanadium can be detected in the urine. Outbreaks occur on oil-burning ships. The workers develop a chronic bronchitis and emphysema. Vanadium poisoning is prevented by wearing dust respirators, using vacuum cleaners for removing as much of the soot as possible, and washing down walls with water sprays.

Scorpion Stings.—In a letter to the *British Medical Journal* of Aug. 10, Dr. M. McA. Holmes of Sokoto, Nigeria, stated that 65 mg. of emetine hydrochloride in 1 ml. of water injected into an area stung by a scorpion gives immediate relief. Sometimes 0.5 ml. or less is sufficient. The author treated over 30 African and European patients by this method. The expression of relief from pain on their faces was obvious and gratifying. Previously, various brands of local analgesics were found to be useless. The writer treated patients who had received a local analgesic and after two or three hours returned with the agonizing pain, which was relieved permanently by emetine. Scorpion venom is a neurotoxin and emetine a protoplasmic poison. The mechanism of the relief is unknown. The writer makes no claim to having discovered this treatment himself.

Inhalation of Grass Spikes.—Inhalation of grass spikes may result in serious consequences if the spike is barbed, as in the case of barley grass, in which the spicules are firm and sharp, are set at an acute angle to a rigid stem, and do not soften on moistening. The arrangement of the spicules in this and some other grasses causes one-way travel with thoracic movement and drives the point onwards. Godfrey (*Lancet* 2:273, 1957) reports the case of a boy of 9 years who complained of abdominal pain on the right side. Appendicitis was diagnosed and a healthy appendix removed. Shortly afterwards rales were heard on the right side of the chest, and a roentgenogram revealed bronchopneumonia in the base of the right lung, which responded to treatment. Four months later, however, the child was expectorating purulent sputum. After the boy had undergone many admissions to hospital and repeated bronchoscopy and bronchography, lobectomy on the right was done. Section of the excised lung showed a well-preserved inflorescence of barley grass 2 in. long. This had been inhaled two days before the onset of the original abdominal pain. In another case, a girl of 16 months inhaled two grass seeds. Owing to subsequent coughing, retching, and cyanosis, a bronchoscopy was performed and a barbed grass seed removed from the right main bronchus. After two weeks, the radiological signs improved, but 17 days after the original incident the cough recurred, a roentgenogram revealed a slight opacity in the base of the right lung, and the child had a remittant fever. A hot tender fluctuant swelling 2 in. in diameter suddenly appeared to the right of the fourth lumbar vertebra. When incised, it discharged pus containing Escherichia coli for a few weeks. Seven weeks after it had been inhaled, a spike of barley grass more than 2 in. long was removed from the sinus. Removal of the spike produced a fit of coughing, and iodized oil injected into the sinus was traced as far as the diaphragm. The ratchet-like action drove the spike through the lung, diaphragm, and lumbar muscles and out through the skin. It is not known whether permanent lung damage occurred.

Welfare Foods.—A subcommittee under Lord Cohen has made recommendations on the distribution of "welfare foods" (Report of the Joint Subcommittee on Welfare Foods, Her Majesty's Stationery Office, 1957). Orange juice and cod liver oil are free for young children. The subcommittee recommends that the scheme be continued but that orange juice should no longer be given to children over the age of 2 years, because scurvy is almost unknown in older children. Some children have been given enormous doses of vitamin D, e. g., 35,000 I.U. daily, by misguided mothers who give them excessive quantities of cod liver oil as well as foods and proprietary preparations fortified by vitamin D. They thus run a risk of hypercalcemia. As rickets is still seen, the subcommittee considers that cod liver oil supplements should still be issued, but it suggests that the amount of vitamin D be reduced. The new levels for food fortification with vitamin D are: (1) national cod liver oil, average 100 I.U. per Gm. (formerly 200 I.U. minimum); (2) national dried milk, average 90 to 100 I.U. per ounce of powder (formerly 280 I.U. minimum); and (3) infant cereals, average 300 I.U. per ounce of dry cereal (formerly 1,000 I.U. minimum). These levels take into consideration the suggestion of Medical Research Council Conference on Hypercalcemia, which considered a daily intake of 400 I.U. of vitamin D throughout infancy sufficient. The subcommittee hopes that manufacturers of infant foods will cooperate to insure that they do not upset the balance by excessive fortification of these foods with vitamin D.

CORRESPONDENCE

HEART BLOOD VS. FEMORAL VEIN BLOOD FOR POSTMORTEM ALCOHOL DETERMINATIONS

To the Editor:—In the paper by Turkel and Gifford, "Erroneous Blood Alcohol Findings at Autopsy," which appeared in the July 6, 1957, issue of The Journal, the authors reported analyses for alcohol conducted on heart blood and femoral vein blood taken from 51 alcoholic cadavers during autopsies performed 3 to 72 hours after death. In 16 of the cases the alcohol level in the femoral blood exceeded the heart level, the ratio being 0.95 to 0.99 in 13, 0.85 in 2, and 0.81 in one. With the remaining 36 bodies, the ratio of heart blood sample to femoral vein blood sample exceeded 1.00 and was above 1.10 in 11 (1.11 to 1.54, average 1.23). Turkel and Gifford ascribe these high ratios to postmortem diffusion of unabsorbed alcohol from the stomach to the region of the heart.

Another factor, apparently overlooked by these authors, may have been the cause of some of the high alcohol ratios It is the normal lag in the alcohol level of the venous return from a limb during active absorption of orally administered alcohol. This lag was first reported by Haggard and Greenberg in 1934 (*J. Pharmacol. & Exper. Therap.* 52:150-166 [Oct.] 1934), on the basis of tests with one dog This phenomenon was subsequently confirmed by us in a large number of dog experiments (Harger, Hulpieu, and Cole: *Fed. Proc.* 4:123 [March] 1945, Forney, Hulpieu, and Harger: abstracted, *J Pharmacol. & Exper. Therap.* 98:8 [Jan.] 1950), although our figures for the magnitude and duration of the lag were lower than those of Haggard and Greenberg Our dogs received, by stomach tube, 1 to 4 Gm. of alcohol per kilogram in a concentration of 24% by volume. Samples of heart blood and saphenous vein blood were taken simultaneously from the living animals at various time intervals. A summary of our findings is represented in the table

*Summary of Findings in Samples of Heart and Saphenous Vein Blood**

No of Animals	Time Interval	Ratio of Heart to Saphenous Blood Alcohol	
		Range	Av
13	10 min	(1)0.98, (12)1.22-1.93	(13)1.41
17	15 min	1.04-1.49	1.20
17	30 min	0.98-1.27	1.10
17	1 hr	0.90-1.15	1.01
17	2 hr	0.91-1.03	0.99
17	3 hr	0.96-1.13	1.01

* Femoral blood samples taken at 15 and 30 minutes gave results which were almost identical with those from saphenous blood

More recently Forney, Baker, and I (*Quart. J. Stud. Alcohol* 17:1-18 [March] 1956) have demonstrated this type of lag in the alcohol level of cubital vein blood of humans, as compared with the level of their fingertip capillary blood. Thirty-four such pairs of blood were taken within 70 minutes after the last drink. The ratios of capillary to venous alcohol of 13 of these ranged from 1.11 to 1.22, with an average of 1.15. The alcohol level of capillary blood is always very close to that of arterial blood (Haggard and Greenberg, *loc. cit.*).

In a previous study by Gifford and Turkel (*J. A. M. A.* 161:866-868 [June 30] 1956), they introduced 3 to 6 fluid ounces of straight whiskey into the stomachs of 11 nonalcoholic cadavers. After intervals of 10.5 to 24 hours they found alcohol in the heart blood, ranging from less than 0.02% in four cases to 0.106% in one body where death was due to peritonitis. Blood from the femoral vein contained no alcohol, except for a faint trace in one case. These results are in agreement with earlier studies of O. Huber (*Deutsch Ztschr. ges. gerichtl. Med.* 37:128-135, 1943) and by Bowden and McCallum (*M. J. Australia* 2:76-81 [July 2] 1949). However, the conditions employed in these three investigations are very drastic, since the concentration of alcohol introduced into the cadaver stomach was much higher than one would usually find in the stomach of a heavy drinker 10 to 15 minutes after his last drink, because the drop in the alcohol level in the living stomach is exceedingly rapid. (On this point see The Pharmacology of Alcohol, by Hulpieu and me in "Alcoholism" [edited by G. N. Thompson, Springfield, Ill., Charles C Thomas, Publisher, 1956, chap. 2, pp. 122-127]).

Since the alcohol level of the brain always parallels that of arterial blood, but not of that return blood from a limb during active absorption (Harger: *J. Forensic Sc.* 1:27-38 [April] 1956), it may be that the "error" in cadaver blood is in femoral vein blood and not in heart blood This point can be settled by experiments with animals which are quickly killed after receiving alcohol orally, where samples of femoral vein and heart blood are taken immediately after death and again after the lapse of 12 to 24 hours. The same type of study should also be made in cases of sudden death in humans who have been drinking heavily shortly before death.

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BLOOD ALCOHOL FINDINGS AT AUTOPSY

To the Editor:—The paper "Erroneous Blood Alcohol Findings at Autopsy" by Turkel and Gifford (*J. A. M. A.* 164:1077-1079 [July 6] 1957) raises several interesting medicolegal questions. 1. It points up a fallacy of interpretation which is commonly made by attorneys but which is less frequently made by medical scientists, that the blood alcohol level which indicates intoxication is 0.15%. In the courtroom there is a tendency on the part of attorneys to believe that all persons having 0.15% or more alcohol in their blood are drunk, whereas those having 0.14% or less are sober. The report of the A. M. A. Committee to Study Problems of Motor Vehicle Accidents (Organization Section, *J. A. M. A.* 124:1290 [April 29] 1944) establishes a "floor" value of 0.05% in the blood below which it may be fairly presumed that no one is under the influence of alcohol, and a "ceiling" value of 0.15% above which persons may be presumed to be under the influence. Of the intermediate questionable zone they stated that in this "liberal wide zone: alcohol influence *usually* is present, but courts of law are advised to consider the behavior of the individual and circumstances leading to the arrest in making their decision" (italics added). More recently the Committee on Medical Aspects of Automobile Injuries and Deaths recommended that, in the interest of public safety, this "ceiling" value of 0.15% be reduced to 0.05% (Organization Section, *J. A. M. A.* 163:1149-1150 [March 30] 1957). For Turkel and Gifford to imply that a finding of 0.11% alcohol in the blood establishes sobriety is misleading.

2. A second source of confusion stems from the unreal and meaningless use of blood analysis values reported to the third significant figure. To calculate one's analyses to the thousandth of 1% when the admitted analytical error is ±5% gives a false impression of accuracy. It should be pointed out that in a factor such as alcohol influence which, in man, varies from 0.05 to 0.15% alcohol content of blood, variations of 0.01 or 0.02% have little clinical significance.

3. The generally accepted yardstick for the biochemical estimation of intoxication is the alcohol content of whole blood. The specimens of "heart blood" which Drs. Turkel and Gifford obtained at autopsy were not whole blood but rather blood pooled in the pericardial sac. This consisted of bloody serous fluid contaminated by pericardial fluid. Since it is well established that the concentration of alcohol in serum is 10 to 20% higher than that of whole blood, variations in the relative proportion of serum and cellular components in an autopsy specimen of blood may give rise to wide variations in its alcohol content. Pericardial fluid, as shown by Gifford and Turkel (*J. A. M. A.* 161:866-868 [June 30] 1956) is highly susceptible to contamination by diffusion from alcohol-rich stomach contents. To obtain uncontaminated heart blood at autopsy is comparatively easy. When one severs the large vessels of the heart, the bloody contents (including clots) may be pressed out and caught in a 4-oz. wide-mouth jar. A specimen so obtained gives a good approximation of whole blood in the heart.

4. The question of postmortem diffusion of alcohol is not new (see Blutalkohol by H. Elbel and F. Schleyer [ed. 2, Stuttgart, Georg, Thieme Verlag, 1956, p. 126] for a review of the European literature since 1935). That the resulting errors are more apparent than real is borne out by an analysis of the 75 cases reported by Turkel and Gifford. Of these, 24 were entirely sober; 5 had been drinking alcoholic liquor but could be fairly presumed not to be under the influence of alcohol; 17 fell into the questionable zone between 0.05 and 0.15%; and 28 could be fairly presumed to be under the influence of intoxicants. In no case would an erroneous diagnosis have been made by relying on "heart blood" values rather than those obtained from femoral blood. In the most aberrant value reported by Turkel and Gifford in which the heart blood concentration was found to be 0.09% higher than that of the femoral blood, the victim was not simply under the influence; he was drunk (0.35%). The authors' argument could have been made much more convincing had they analyzed the stomach contents in their patients in order to establish a direct basis for assuming that the observed disparity was due to diffusion and not to an unduly high proportion of serum in the heart blood or its contamination by pericardial fluid.

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HYPOTHYROIDISM

To the Editor:—As a midwestern physician with an interest in metabolic disease, I am somewhat concerned by certain views expressed in a recent paper entitled "Hypothyroidism" (*J. A. M. A.* 165:121-124 [Sept. 14] 1957). The author's assertions that hypothyroidism is the most frequent affliction in the Midwest, that exophthalmic goiter may be induced by the administration of exogenous thyroid, and that the most frequent cause of daily headache is hypothyroidism seem open to question. While the insidious onset of myxedema frequently impedes its early diagnosis, the ill-advised use of thyroid substances seems much more prevalent than the disease. There are well-defined criteria for the diagnosis of deficient thyroid function, and thyroid therapy for vague or ill-defined syndromes should be discouraged.

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THE LEISURE CORNER

LET'S GO BOWLING

Like most pastimes, the game of bowling has kept pace with revolutionary processes. In the beginning, bowling was a crude recreation played with primitive equipment in any available open space. But, as the sport evolved it was transformed from a childish game to that of a sport with universal appeal for people of all manners and ages. Today, many physicians recommend bowling to patients, not only because of the amusement factor but because it is a builder of well-being, for it exercises unused muscles of the body and can be played the year round.

At one time or another, everyone has the urge to throw or roll an object. Relics of the Stone Age depict stones being rolled or thrown at other stones; indeed, the ancient game known as duck-on-the-rock is a forerunner of bowling. History, furthermore, informs us that bowling actually is an ancient and royal sport, engaged in at one time only by members of the aristocracy. During the reign of Henry IV, bowling became so popular in England that public alleys were built in connection with dining establishments.

While skittles, Dutch-rubbers, cloish, and skayles have all had their part in the development of modern bowling, the most closely allied is the game nine-pins. This game originated with the Dutch and was brought by them to American shores in 1623. At that time, nine-pins was bowled on alley beds made of clay. Later on, a single board about 12 in. wide was used as an alley bed; pins were set up in sets of three and in rows of three on a board platform 36 to 48 in. square. The game of nine-pins gained great popularity for many years. As a result of an enactment of a law against the game, a 10th pin was eventually added, changing the set-up from a diamond shape to a triangular system.

Pins used at different periods ranged from 3 to 15 in number and consisted of a variety of shapes, sizes, and arrangements. Alleys or court beds consisted of lawn, clay, slate, and planks 12 in. or more in width and ranging from 20 to 100 ft. in length. One to three balls were permitted in each frame at various stages in the evolution of bowling.

It is interesting to note that Sir Francis Drake was an ardent bowler. One story has it that in 1588, while participating in a bowling match, the famous English sea hero was notified that the Spanish Armada had arrived in the English Channel. Not having vanquished his bowling opponent, he delayed going to sea against the enemy flotilla until the bowling match was won.

On Sept. 9, 1895, the American Bowling Congress was established to promote and elevate the game. The congress formulated a uniform set of playing rules and established regulations to cover the building of bowling alleys and equipment. As a result, bowling today is effectively regulated by the American Bowling Congress and the pastime is considered by many to be the best organized of all sports. The laws of the congress are formulated and distributed at an annual convention held during the tournament season.

Bowling is an intricate skill that requires as much technical aptitude as any other game. The object of bowling is to topple the greatest number of pins with the least number of balls rolled. After bowling a few times, the beginner discovers the fascination of hearing a ball crash into pins and seeing them fall. Bowling should not be regarded as a game of brute strength; it does not consist merely of throwing a ball with all the speed that can be mustered, trusting to luck that the pins will topple. When skillful players compete they know precisely how to achieve desired results. The occasions they fail can often be attributed to faulty footwork, to the time they half-drop a ball, to failure to place it properly on the alley, and to failure to roll the ball at a correct and proper angle. Too much speed or errors in judgment are disadvantages to mar a bowling score. Paradoxically, a bowler with a small stature often appears to have advantages over his heavier, more sturdily built competitor.

A foremost consideration in bowling is the selection of a ball. A ball should fit the hand of an individual just as comfortably as a pair of shoes should fit the feet. Finger holes should be spaced so that it is unnecessary to stretch the hand unnaturally. Neither should finger holes be so close as to make one strain the hand in order to hold the ball firmly and with ease. Unless a ball fits the hand comfortably, it is almost impossible to deliver it easily and properly.

After a properly fitted ball has been selected, the next step is to perfect the stride to the foul line. An experienced bowler can usually give appropriate instructions for the adoption of a comfortable style without straining. In a very short time, this will become a natural part of one's bowling habits. The first or strike ball is most important, and great effort should be made to see that if no strike is accomplished, as large a number of pins as possible are obtained, making the remaining spare shots relatively simple. The weight of pins can generally be determined by watching their action when the ball comes in contact with them. When they are light, you will notice that they jump or raise as they are hit. Consequently, light pins require a slower ball. Heavy pins, on the other hand, call for a trifle more speed. Pins of mixed weight are difficult to knock down because the action of the ball varies.

Keeping score is an important part of the game and it provides a part of the anticipation in the sport. When one becomes familiar with terms such as spare, railroad, cherry pick, tapping, and crossing over mean, interest in the game is enhanced. In general, a game consists of 10 frames. One counts only the actual number of pins knocked down if 10 pins are not made with two balls in the same frame. If a spare is made, a count of 10 plus the number of pins knocked down with the next ball gives a total for a frame. The results of each succeeding frame are continually added until 10 frames have been bowled.

Every physician who has ever taken up bowling knows how enjoyable it can be. While proficiency is a common goal of all bowlers, the score is not necessarily related to the amount of pleasure to be derived. Fellow bowlers invariably laugh when you laugh, moan when you moan, and thrill with you at a successful shot. Bowling makes you feel "you're the tops." You enjoy a leading role, the stage is yours, and all eyes rest upon you. And if there is the slightest bit of "ham" in a bowler, he will derive considerable joy in putting on a humorous act.

Not everyone can be an ace bowler. Most of our country's 20 million bowlers average under 170. Whatever the score, the same full measure of pleasure and physical exhilaration from bowling can be had by all participants. In the final analysis, it is precisely these merits that give the sport its rich flavor. There is more to the game than just felling shiny hunks of maple. There are specific rules to be followed; to violate them is to violate good manners in bowling, and this is a cardinal sin in the sport.

Finally, a few terse "don'ts" about bowling should you decide to take up the game. Do not interfere in any way with a bowler who has taken his stance on an adjoining lane. Do not start when he starts and race him to the foul line. If he is ready to deliver his ball, give him the go-ahead signal and stand completely clear. Do not let bad breaks get you down. As a physician, you frequently utter encouraging advice to your patients. When you go bowling, remember to apply it to yourself. So, roll out the ball and have a good bowling laugh!

MEDICAL FILM REVIEWS

Time and Two Women: 16 mm., color, sound, showing time 18 minutes. Produced in 1957 by Audio Productions, New York, for and procurable on loan from the American Cancer Society, 521 W. 57th St., New York 19.

This film alerts women to the urgency of early detection of uterine cancer and explains the uterine cancer cell examination (the "Pap" smear). It is narrated by Dr. Joe V. Meigs of Boston, who tells the stories of two women who had cancer of the uterus: one who ignored warning signals and saw her doctor too late, and the other whose early cervical cancer was detected in the course of a periodic checkup. The growth of cancer is shown by animated diagrams; and a photomicrograph of a cervical smear, with normal and malignant cells, identifies for the viewer how the pathologist can suspect the presence of cancer by noting cells' structural abnormalities. Details of the routine examination are explained, emphasizing that the patient experiences no discomfort during the procedure. Since the second patient's laboratory report indicated the presence of abnormal cells, she returned the following day, when several small tissue specimens were removed from the cervix. These enabled the pathologist to make a positive diagnosis of cancer. After treatment, she reported for follow-up examination, including smears, for five years, during which she showed no further evidence of disease. The film is concluded with an appeal for women to go to their family physicians once a year for a pelvic examination even though they have no symptoms.

This film should be considered as part of a broad program of professional and public education. At each showing, a doctor should be present to answer questions from the audience; slides of key materials in the film are supplied for projection during the discussion period. At the present time there are not enough trained professional assistants for the pathologists in analyzing specimens taken for cell examination; therefore, the film should be shown only in those areas where the county medical society approves and where pathologists are prepared to read smears. This is an excellent film, clear-cut, pertinent, concise, and very illuminating. The participants perform their parts exceptionally well and the photography is excellent. It is recommended for showing to all women in those areas where facilities for cancer cell examination are available.

ILLUSTRATED FILM REVIEWS

Illustrated reviews of current films will appear when possible as a regular feature in The Journal. *They will consist of an introduction by the author followed by a pictorial digest of actual frame enlargements selected as key points of the film.*

Ralph P. Creer, *Director*
Motion Pictures and Medical Television
Council on Scientific Assembly.

TIME AND TWO WOMEN

Joe V. Meigs, M.D., Boston

Seeking to motivate women to adopt the lifesaving habit of health checkups, this film was released as a part of a broad education program which will be undertaken in communities where technical facilities are available for interpreting vaginal smears, and where the county medical societies approve use of the film. The uterine cancer cell examination, the "Pap" smear, is explained in an effort to alert women to the urgency of early detection of uterine cancer.

The film deals with diagnosis of cancer of the uterus with special emphasis on cytology and dramatizes the fate of two women: one who ignored warning signals and saw her doctor too late and the other whose early cervical cancer was detected in the course of a periodic checkup. The written review of this film appears on page 728 of this issue.

Fig. 1.—Dr. Joe V. Meigs, consulting visiting gynecologist, Vincent Memorial Hospital, Massachusetts General Hospital, Boston, makes the point that 16,000 women die needlessly each year of uterine cancer.

Fig. 2.—First patient confesses that she has not had a checkup in over 19 years. She consults the doctor after months of delay. First symptom was ignored. She now has bleeding, loss of weight, and pains in legs and back.

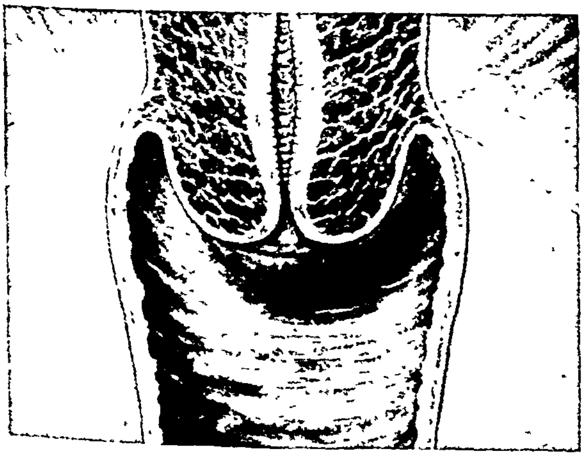


Fig. 3.—After a labeled drawing of the pelvic anatomy, a close-up of the cervix locates the beginning of patient's cancer.

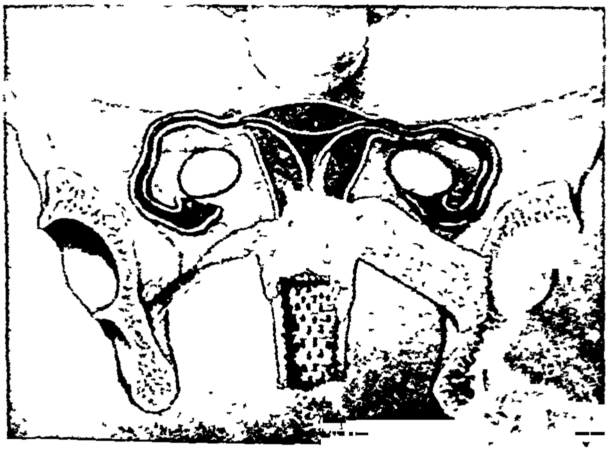


Fig. 4.—Animated sequence shows spread of cancer into endocervix, accompanied by increased bleeding. It continues to show classic pattern of extension into corpus uteri and para[illegible] Death followed shortly.

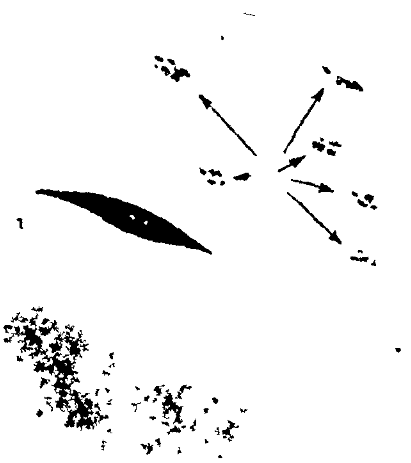


Fig. 5.—Normal process of cell exfoliation is explained. If cancer is present, among those cells will be found malignant cells.

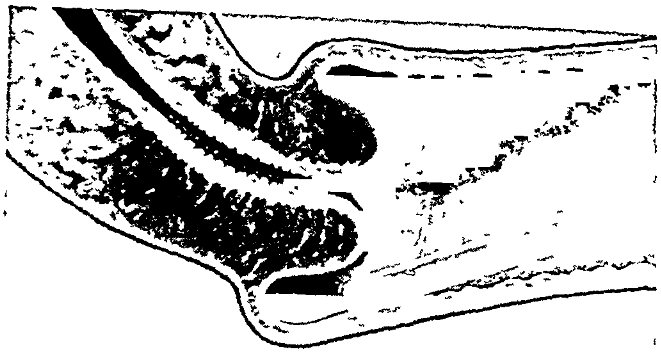


Fig. 6.—On sagittal view is illustrated the technique for removing a sample from the vaginal pool, using suction pipet. This procedure is painless to patient.

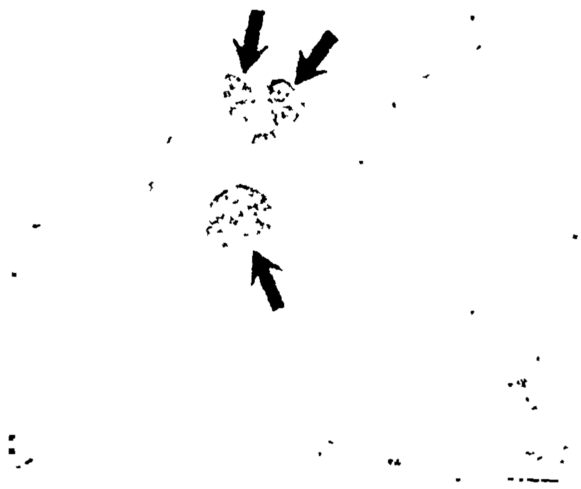


Fig. 7.—By noting cells' structural abnormalities in cervical smear, pathologist can suspect presence of cancer months, or even years, before it produces symptoms.

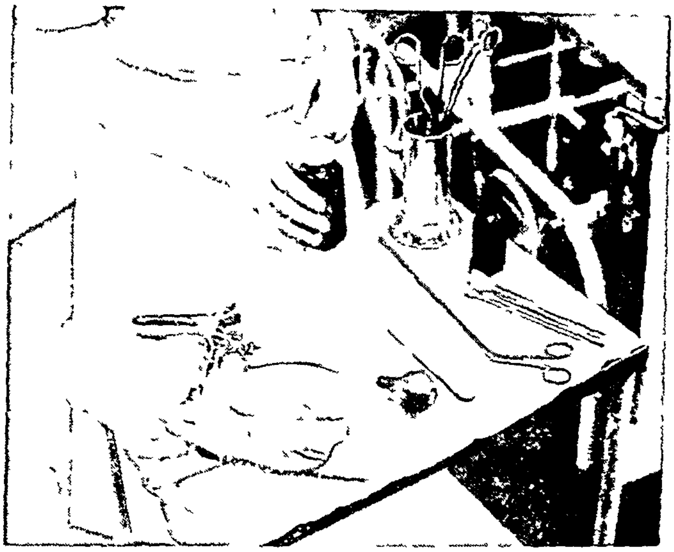
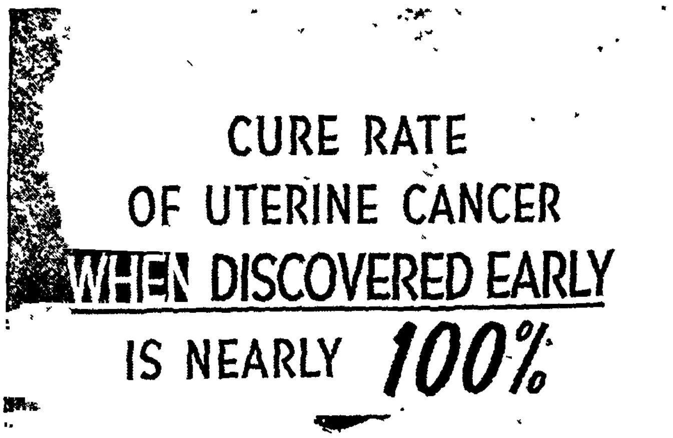


Fig. 8.—During yearly physical checkup of second patient, a cell specimen is taken for interpretation by the pathologist. Instrumentarium is shown and explained.

Fig. 9.—Laboratory report indicated presence of abnormal cells. Small tissue specimens removed from cervix confirmed positive diagnosis of cancer. Treatment followed, after which patient showed no further evidence of disease.



CURE RATE
OF UTERINE CANCER
WHEN DISCOVERED EARLY
IS NEARLY 100%

Fig. 10—Goal of physicians is to realize the full potential of curability of uterine cancer, which can be accomplished only with the help of all women.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Treatment of Active Chronic Infectious Hepatitis with ACTH (Corticotrophin) and Cortisone. P. M. Last. M. J. Australia 1:672-676 (May 18) 1957 [Sydney].

The term "active chronic infectious hepatitis" covers a group of patients with fairly well-defined clinical features, a highly characteristic pattern of biochemical findings, and a histological picture of the liver indicating active chronic inflammatory changes. It has been shown that corticotropin and cortisone are unsuccessful when used in the management of hepatic failure in advanced portal cirrhosis. This report is concerned with the effect of these drugs in the active chronic stage of the disease in 9 patients, an earlier report from this unit having presented observations on 34 patients with active chronic infectious hepatitis, of whom 18 died. The 9 patients included 5 men and 4 women. A detailed history was taken in all cases, including the assessment of diet, a search for contact with infectious hepatitis, a history of injections and transfusions, and possible exposure to hepatotoxic agents. Complete physical examination was repeated at intervals, and the patients were weighed regularly. At regular intervals the following biochemical estimations were performed: serum bilirubin content. cephalin flocculation, alkaline phosphatase content (in King-Armstrong units), and serum protein fractionation. The total serum lipids and the blood cholesterol content were determined.

Complete blood examination was performed in all patients on admission to hospital and repeated from time to time. Corticotropin and cortisone therapy were continued for periods ranging from 1 month to 3 years. One patient appears to have completely recovered, 2 have shown moderate improvement, and 3 have shown little or no benefit. Three patients died, but 2 of them improved subjectively while having hormone therapy. With the exception of 1 patient with severe cirrhosis, all patients showed prompt symptomatic improvement. which was not always sustained. No patient appears to have been made worse by hormone therapy. Histological material was obtained in 7 patients before the institution of hormone therapy. in 8 patients subsequently by serial liver biopsy. and at autopsy in the 3 fatal cases. In one patient liver biopsy indicated transient increase in activity, but in the rest no significant histological change could be attributed to hormone therapy. Sudden withdrawal of cortisone may precipitate acute relapse, even though the drug appears to have been producing very little effect. It is concluded that in the treatment of active chronic infective hepatitis, corticotropin and cortisone may produce varying subjective benefit and some improvement in the biochemical finding relating to liver function, but no significant histological change.

Problem of Carcinosarcoma: A Case of Gastric Neoplasm. J. C. Sanchez-Lucas and J. Villar-Bonet. Med. clín. 28:1-5 (Jan.) 1957 (In Spanish) [Barcelona, Spain].

There is a controversy among histopathologists as to whether a carcinosarcoma is a special type of tumor or only a carcinoma of atypical development, having large zones of anaplasia simulating sarcoma. The authors report histological studies of a gastric tumor which seem to prove that carcinosarcoma is not a special type of tumor. A woman 66 years old complained of gastric disorders of 2½ years' duration. The patient lost 12 kg. (26.5 lb.). A tumor could be felt on palpation. Roentgen examination of the stomach showed irregularities of the great curvature and a round shadow. A large tumor occupying the great curvature and several metastases were found at laparotomy. A total gastrectomy with cardioduodenal anastomosis was performed. The stomach contained a large tumor, occupying the great curvature, and a polyp. The histological study of the tumor revealed an adenocarcinoma in one portion of the tumor and a sarcoma in the other. Both portions were continuous through a band of disintegrated epithelial cords extending from the adenocarcinoma into the sarcoma portion. The polyp showed a transformation into an adenocarcinoma. The metastases were exclusively of the epithelial type. The findings in this case support the theory that carcinosarcoma is a carcinoma of atypical growth. Disintegration of the epithelial cords seems to be the causal factor of the transformation into sarcoma.

The place of publication of the periodicals appears in brackets preceding each abstract.

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Hyperfunction and Hypofunction of Endocrine Glands and Diabetes Mellitus. P. G. Skillern and E. P. McCullagh. J. Indiana M. A. 50:701-709 (June) 1957 [Indianapolis].

Although the faulty carbohydrate metabolism that characterizes diabetes mellitus is traceable most frequently to dysfunction of the pancreas and resultant deficiency of insulin, other factors play important roles in carbohydrate metabolism, and their action sometimes causes diabetes or affects an existing diabetes. Diabetes mellitus may be produced by hyperfunctioning tumors of the pituitary, adrenal cortex, adrenal medulla, and thyroid and by hyperplasia of the adrenal cortex and thyroid. After surgical correction of the pathological condition, the diabetes may or may not be reversible. The authors cite patients with acromegaly in whom diabetes became reversed spontaneously, following treatment with cobalt teletherapy, or after treatment with estrogens. The diabetes due to Cushing's syndrome is usually corrected by surgical removal of the tumor or hyperplasia of the adrenal cortex.

One patient with Cushing's syndrome and pituitary tumor had a temporary remission of the diabetes after cobalt irradiation of the pituitary. The diabetes mellitus of 1 patient with pheochromocytoma, who was admitted in diabetic acidosis, disappeared after removal of the pheochromocytoma. The occurrence of diabetes mellitus in 2 patients with aldosteronism due to adrenal tumor suggests that a hormone may be secreted which has some corticoid action. Marked hyperglycemia during the administration of cortisone or permanent diabetes mellitus following the administration of exogenous cortisone is probably due to a preexisting latent or mild diabetes mellitus. A diabetic glucose-tolerance curve in a patient with hyperthyroidism may or may not be due to diabetes mellitus. An elevated fasting blood sugar level in the presence of hyperthyroidism is due to diabetes mellitus.

Generalized Intestinal Polyposis with Melanoplakia of Lips, Oral Mucosa and Fingers (Peutz-Jeghers Syndrome). V. R. Richterich and H. J. Kaufmann. Schweiz. med. Wchnschr. 87:552-558 (May 11) 1957 (In German) [Basel, Switzerland].

The concept of intestinal polyposis includes a number of disease entities that differ with regard to etiology and clinical aspects. Their common characteristic is the formation of multiple intestinal polyps of a precancerous nature. Realization of the possibility of cancerous degeneration of the polyps led to more intensive study of the forms that had been known for some time and to the discovery of new and little-known entities. The author lists 7 different forms of intestinal polyposis: 4 sporadically occurring nonfamilial, acquired forms and 3 hereditary familial forms. This report is concerned with one of the hereditary forms, the Peutz-Jeghers syndrome. When Peutz first described this entity in 1921, he called attention to the triad of heredity, pigmentation, and polyposis. More general attention was called to this form of intestinal polyposis by Jeghers and co-workers in 1949. The author found that so far 12 families have been reported in which more than 1 member was found to have the Peutz syndrome. Diagrams of the genealogical tree of 3 of these families show the appearance of the Peutz syndrome in successive generations.

The pigmentation appears in the form of melanoplakia in the perioral region, the oral mucosa, the fingers and toes. The spots on and around the lips are generally small and resemble freckles; those of the oral mucosa are usually larger. In some patients these spots are found also around the eyes and nose. On the hands and feet the spots show interdigital and sometimes volar or dorsal localization. In the differential diagnosis of the melanoplakial phakomatoses, endocrinopathies and nutritional disease must be ruled out. The most important symptom of the Peutz syndrome is polyposis of the small intestine particularly in the ileum and jejunum. In about half of the carefully examined patients polyps were found also in the stomach, and in about one third of the patients the colon and rectum were involved. In children this progressive disorder becomes manifest in recurrent episodes of invagination or gastrointestinal bleeding. In adults, signs of intestinal malignancy, such as bleeding and stricture, are frequently the first symptoms. The precancerous nature of the polyps is proved by the frequent occurrence of carcinoma in young adults and by the multifocal development of cancers. A dominant pleiotropic gene with high penetrance seems to be the cause of this disorder.

Aging of Arteries in Relation to Hypertension. J. Conway and K. S. Smith. Circulation 15:827-835 (June) 1957 [New York].

A new clinical method has been devised by the authors for the qualitative assessment of the elastic properties of the arterial reservoir. The method depends on changes in pulse pressure that occur after the inhalation of amyl nitrite as the blood pressure falls without change in heart rate. The test was applied to 16 normal young men and women between the ages of 17 and 32 years and to 52 patients with hypertension. Little change in pulse pressure accompanied the fall in diastolic pressure in the normal person after the inhalation of amyl nitrite (15% of the fall in diastolic pressure). In the hypertensive group, there were 15 patients with systolic or arteriosclerotic hypertension. In these patients the reduction in pulse pressure after the inhalation of amyl nitrite was 116% of the simultaneous fall in diastolic pressure. The remaining 37 patients with hypertension were grouped according to their responses to the elasticity test. In 20 patients the response was within the normal limits, and the average fall in pulse pressure was 28% of the fall in diastolic pressure—these patients were believed to have normally elastic arteries. In 17 patients the fall in pulse pressure was 96% of the fall in diastolic pressure, and it did not differ significantly from the response of the arteriosclerotic patients. They were therefore believed to have inelastic arteries.

Clinical differences between the patients with elastic and those with inelastic arteries strongly suggested that these patients had in fact different diseases. In one group the elevation of pressure appears to be the consequence of physiological aging of arteries and in the other group hypertension is imposed on a normal elastic arterial system. Those with elastic arteries were younger and had a higher initial diastolic blood pressure than those with inelastic arteries. The difference in age and in severity of hypertension suggests that the separation of hypertension into these functional types may be of considerable clinical value, and it offers some prospect of discerning the true nature of the disorder.

Anticoagulants in Acute Myocardial Infarction with a Comparative Analysis of Prognostic Factors. H. D. Chieffo. J. M. Soc. New Jersey 54:266-271 (June) 1957 [Trenton].

This study was originally undertaken to determine whether the anticlotting agents should be used routinely in acute infarction of the heart. All patients admitted to St. Francis Hospital in Jersey City, from January, 1950, to December, 1955, with acute myocardial infarction (confirmed by serial electrocardiograms or autopsy) who survived the initial 24 hours of hospitalization were included in this review. There were 140 patients. Anticoagulants were administered at the discretion of the attending physicians. They used these drugs most often in the poor-risk type of patient. A few practitioners, however, did use anticoagulants routinely. There were 63 patients treated with these drugs (group A) and 77 patients who did not receive them (group B). There were 9 deaths among the 63 patients treated with anticoagulants (14%) and 17 deaths among the 77 patients (22%) not treated with anticoagulants. In the group treated with anticoagulants there was a trend toward reduction of mortality in those with shock, congestive heart failure, previous myocardial infarction, hypertension, thromboembolism, diabetes mellitus, and pulmonary and renal disease. It is concluded that anticoagulants should be used in patients with these associated conditions.

The incidence of thromboembolic complications was equally low in patients who received anticoagulants as in those who did not. The difficulties involved in the diagnosis of this disorder may to some extent explain the low incidence noted. There were 2 deaths due to hemorrhage induced by anticoagulant drugs, and for this reason they must be used with extreme caution. They should not be used when there are contraindications such as peptic ulcer and other ulcerative lesions of the gastrointestinal tract, liver or renal disease, and hemorrhagic disorders. Anticoagulants should not be used routinely in patients with mild attacks of myocardial infarction who have no complications.

Experimental Studies of Mechanism of Action of Fat Embolism. E. Krönke. Arch. klin Chir. 285:308-340 (No. 3) 1957 (In German) [Berlin].

Artificial fat embolism was produced by intravenous injections in cats and dogs of a proprietary preparation of iodine in vegetable oil (iodipin), paraffin oil, and a suspension of Lycopodium spores. Graphic presentations of blood pressure values in the systemic and pulmonary circulations and of the respiratory changes occurring in the course of the animal experiments with iodipin, which remains locked up within the fine pulmonary vessels, revealed that death occurred only with complete obstruction of the pulmonary circulation. Reflex phenomena were produced not by oil embolism of the pulmonary vessels but by solid bodies, such as the Lycopodium spores.

The circulatory disturbances in pulmonary fat embolism are of a purely hydraulic nature and are the result of narrowing of the pulmonary vessels; they have no relation to the clinical aspect of shock. As a rule, pulmonary fat embolism may be considered harmless; it may gain importance only as an additional cause of death when it is associated with traumatic shock and other secondary injuries and disorders. In contrast, generalized fat embolism may exert a fatal effect when it affects vital areas of the central nervous system. Generalized fat embolism is produced predominantly by an overload placed on the pulmonary vessels by the fat emboli, i. e., by massive pulmonary embolization in the presence of normal heart action. In the animal experiments severe manifestations of shock and death were elicited by intra-arterial injections of smaller amounts of fat into the carotid artery. The author believes that traumatic fat embolism becomes significant mainly by the involvement of the central nervous system.

The conclusions drawn from these observations with respect to therapy of fat embolism in man are that in injured persons the frequently associated state of shock should be combated not with measures aimed at increasing the blood pressures but with agents which exert a damping effect on the autonomic nervous system, simultaneously inhibit the biological occurrence of lipase activity, and exert a mild depressive effect on the blood prestreated with anticoagulants was significantly lower than that in the group not so treated. The mortality in the treated group also compared favorably with other statistics on the prognosis in patients with coronary artery disease not treated with anticoagulants. Of the 275 patients treated with anticoagulants, the interval between diagnosis of angina pectoris and the institution of anticoagulant therapy was known in 266; this interval was less than 1 year in 134 and more than 1 year (with an average duration of symptoms of more than 4 years before the start of therapy) in 132. The mortality per year in these two groups was 2% and 8.1%, respectively, i. e., a significantly reduced mortality in the group treated within 1 year after the diagnosis, whereas statistics on the natural course of angina pectoris showed the highest mortality in the first year. The incidence of myocardial infarction during treatment with anticoagulants was significantly lower than in a corresponding period before treatment. The anginal distress, as measured by the effort tolerance, improved greatly in 38% of the patients and showed some improvement in an additional 12%. Improvement occurred gradually, reaching a maximum after 1 year of treatment and remaining fairly constant thereafter.

These results indicate that long-term anticoagulant therapy is effective in patients with angina pectoris. Among various factors which might possibly have influenced the course of the disease besides the anticoagulant itself, the placebo effect, psychosomatic effects initiated by the medical attention and reassurance of the patient, weight reduction, reduced tobacco consumption, and other changes in mode of life have been listed. It was not possible to draw definite conclusions concerning the relative importance of these factors, but weight reduction seems to improve the prognosis. The incidence of clinically significant hemorrhages caused by the anticoagulants alone was about 1 per 27 treatment-years, or about 1 per 20 treatment-years if patients with other causes of hemorrhage, such as peptic ulcer or ureteral stone, were also included.

The Clinical Use of Radioisotopes in the Differential Diagnosis of Anemia.

W. L. Hughes, P. C. Johnson, E. S. Berger and R. M. Bird. South M. J. 50:709-712 (June) 1957 [Birmingham, Ala.].

Cobalt-60-labeled vitamin B_{12} can be given orally and its absorption from the gastrointestinal tract measured. The basic defect in pernicious anemia is thought to be a permanent deficiency of gastric intrinsic factor so that adequate absorption of vitamin B_{12} from the gastrointestinal tract fails to occur. Since this defect is not influenced by parenterally administered vitamin B_{12}, the demonstration of faulty absorption of vitamin B_{12} from the gastrointestinal tract establishes the diagnosis of pernicious anemia despite previous treatment. The use of tagged cobalt as a diagnostic tool is illustrated by the cases of 3 men between the ages of 57 and 65 years. The first patient with progressive weakness and paresthesias in his lower legs, weight loss, and anemia, had been given bimonthly injections of vitamin B_{12} for 1 year, although a definite diagnosis had not been made. The clear-cut difference between the absorption of Co^{60}-labeled vitamin B_{12} with and without normal gastric juice made it possible to establish a diagnosis of pernicious anemia despite the long administration of the vitamin intramuscularly. The test thus solved a therapeutic problem, and the definite diagnosis was established without the need of withholding vitamin B_{12} and without the resultant risk of a neurological relapse. The second patient, with weakness and postprandial epigastric pain of 4 years' duration and paresthesias of the hands and feet of 4 months' duration, had sporadically been given oral preparations of iron and a variety of vitamins. The previous administration of hematinics, while failing to correct the hematological and neurological findings, had made it impossible to establish an accurate diagnosis by the examination of the blood or bone marrow. Co^{60}-labeled vitamin B_{12} excretion studies established the diagnosis of pernicious anemia, and on parenteral vitamin B_{12} therapy the patient obtained a complete hematological and neurological remission. In the third patient, with progressive weakness and attacks of sore mouth and tongue for 5 years, who had received irregularly intramuscular injections of both liver extract and vitamin B_{12}, the Co^{60}-labeled vitamin B_{12} excretion studies made it possible to establish that the patient had so-called nutritional macrocytic anemia but not pernicious anemia. It was interesting to note that subsequent studies in this patient revealed none of the more conventional laboratory evidence of impaired gastrointestinal motility and absorption, which are anticipated in a sprue-like syndrome. The patient made a dramatic recovery on administration of 10 mg. of folic acid daily.

Erythrocytes may be labeled with chromium-51 and be reinjected into the donor. One may then conveniently measure the rate of disappearance of the radioactivity from the circulation. From these data one can infer the rate of hemolysis. In a 13-year-old boy with attacks of anorexia, fever, and jaundice, increased erythrocytic fragility and hemolysis was demonstrated by estimation of Cr^{51}-labeled erythrocyte survival, and the diagnosis of congenital spherocytosis was made. The ability to demonstrate a hemolytic process despite the absence of anemia was of importance in the decision to perform splenectomy. The failure to demonstrate a shortened erythrocyte survival time by the Cr^{51} technique was interpreted as evidence against a hemolytic anemia and hence a contraindication to splenectomy in a 36-year-old man with exertional dyspnea and easy bruising of 1 year's duration. The subsequent failure to respond to splenectomy supported this view. In a third patient, with progressive weakness, dyspnea, hepatosplenomegaly, pancytopenia, and myelofibrosis of the bone marrow, Cr ^{51}-labeled red blood cell survival studies revealed increased hemolysis. Although the cause of the hemolysis was never determined, the apparent improvement after splenectomy would indicate that the pancytopenia was corrected by the operation. The evaluation of known anemias has often been an insoluble problem because of the widespread and casual use of proprietary compounds containing vitamin B_{12} and folic acid. Similarly, a search for a hemolytic element in anemia often has been unrewarding at a given moment. Tagged cobalt and chromium offer new diagnostic tools in such problems.

Acute Renal Failure: Experiences with Conservative and Hemodialysis Treatment in 32 Consecutive Cases. J. H. Thaysen, S. Gjørup and S.-A. Killmann. Dan. med. bull. 4:73-92 (May) 1957 (In English) [Copenhagen].

From May, 1955, to November, 1956, 32 patients with acute uremia were admitted to medical department A of the Rigshospital. Three patients died within 24 hours, 3 had a total anuria due to bilateral ureteral obstruction, and 26 had oliguria due to acute ischemic renal failure or other renal disease. Of the 26 patients, 18 were treated only conservatively, with 8 deaths. In 8 patients conservative treatment was supplemented by hemodialysis; 5 had acute ischemic renal failure, 1 patient had bilateral cortical necrosis, 1 had an actue exacerbation of chronic glomerulonephritis, and 1 had transitory oliguria due to chronic pyelonephritis. Three of the dialyzed patients died. The importance of the primary disease for the ultimate prognosis is stressed. Rational treatment prevents the development of hyperpotassemia, cerebral and pulmonary edema, and severe uremic intoxication, formerly frequent causes of death. Good conservative therapy is fundamental in the treatment of acute renal failure. Supplementary hemodialysis should probably be carried out on relatively liberal indications in order to prevent grave complications.

Leukaemia. R. B. Scott. Lancet 1:1162-1167 (June 8) 1957 [London].

The 2 common forms of chronic leukemia stand in sharp contrast: whereas the myeloid variety follows a stereotyped and constant pattern, the lymphatic may assume any of a dozen disguises. This paper is concerned with the lymphatic form of leukemia, which is marked by proliferation of lymphoid cells throughout the blood-forming organs; the cellular elements are usually mature; in the lymph nodes the proliferation is diffusely spread throughout the medulla; and the destruction and infiltration of the stroma, the histological signs of malignancy, are lacking. Most clinicians in Britain agree that it is the commonest type of leukemia seen today. It is likely that there has been a relatively greater increase in its incidence than in that of other types. There has always been a greater number of males affected than females, and in the present series of 227 patients, males made up 67.4% and females 32.6%. In 80% of the patients the first symptoms appeared between the ages of 40 and 70. The mean age at onset for the whole series was 58.2 years.

When the patient is first seen, the physical signs of the leukemia fall into 1 of 5 categories. The first is what may be called the "classic" form: in this, generalized enlargement of superficial lymph nodes is usually associated with palpable enlargement of the liver and spleen. In the present series the disease assumed this form in 73.2% of the patients. The second category is the splenomegalic type: these patients often complain of abdominal pain, and physical examination reveals massive splenomegaly of the order usually associated with chronic myeloid leukemia; there is commonly a lesser grade of hepatic enlargement; and no superficial lymph nodes are palpable. In this series 11.8% of the patients presented with this form. The third group includes patients who display enlargement of the lymph nodes of one superficial group or some other solitary tumor of lymphoid tissue. The onset was of this pattern in 7.3% of these patients. Specific skin infiltrations, although not rare, are seldom the presenting manifestation, only 2 of these patients (0.8%) coming into this group. In 6.9% no physical signs of disease were evident, and the characteristic changes in the blood were the only leukemic manifestations. Less common clinical features of chronic lymphatic leukemia fall into 2 groups; those depending on leukemic infiltrations in unusual sites, and those presumed to be the result of immunological disturbance.

As one watches patients with chronic lymphatic leukemia through their years of illness, it is possible to discern some pattern in the course of the disease. Usually there is a period of reasonable health, during which the lymph nodes and spleen increase slowly in size and the leukocyte count creeps upward, although the hemoglobin level and the platelet count are well maintained; then, with various degrees of abruptness, the advancing lymphoid infiltration determines bone marrow failure, the hemoglobin level falls, a hemorrhagic state appears, and, unless life is maintained by repeated transfusions, death follows from anemia and exhaustion. During the first phase, radiotherapy or chemotherapy will lower the leukocyte count and cause the lymph nodes to regress; in the second phase treatment is seldom of avail. At any time this course may be interrupted by the effects of infiltrations in such tissues as bone and skin, by infection, or by the appearance of one of the autoimmune syndromes. The length of the first phase varies from a few months to 8 or 10 years, and many of the older patients die with, rather than from, the disease. Rarely a patient appears to recover. In this series, a woman of 80 died of bronchopneumonia 10 years after the onset of chronic lymphatic leukemia; at the time of her death there were no enlarged lymph nodes nor splenomegaly, and the blood cell count was normal. In the present series the mean duration of the disease in 118 patients known to have died was 36.7 months. Survivals of 40 months in 30 untreated patients and 42 months in 50 irradiated patients again underline the fact that treatment has not improved the outlook in this disease.

The Complement Fixation Test in the Diagnosis of Amebiasis. C. G. Spicknall, J. Bosicevich, R. L. Black and others. Gastroenterology 32:1131-1142 (June) 1957 [Baltimore].

The records of 1,370 patients were reviewed on whom complement-fixation tests for amebiasis were performed. This test was found particularly valuable in the diagnosis of amebic liver involvement. The test in this complication of amebiasis was found negative in only 1 patient and doubtful-positive in 2 of 25 studied. The test was positive in intestinal amebiasis in 17.5% of the patients. Of 8 patients with amebic granuloma, only 1 had a positive test: 2 of these patients had Entamoeba histolytica in their stools and 2 had E. histolytica in the biopsy specimens from rectal lesions. The diagnosis of amebic colitis and its complications is difficult to establish. E. histolytica may not be found in amebic granuloma, in amebic hepatitis and abscess, and even in some cases of acute amebic colitis. The appearance of the lesions does not differentiate between amebic infection and other ulcerative diseases of the colon, even when there are ulcerations of the rectal mucosa. The appearance of lesions on roentgenologic study is no certain means of determining the causes of these lesions, whereas barium studies of the colon may suggest amebic disease.

Acute-Phase Protein in Rheumatic Fever. S. Rahman and P. Mozziconacci. Semaine hôp. Paris 34:2179-2186 (June 6) 1957 (In French) [Paris].

C-reactive protein is present at the beginning of an attack of rheumatic fever. The authors observed 52 patients with rheumatic fever and 13 patients with diseases of the same group in children aged 3 to 15. Acute-phase protein disappeared after 1 week of successful therapy with cortisone and prednisone. It reappeared in 15 patients during treatment with aspirin following the hormonal treatment. Six of the patients had a progressive type of rheumatic fever. The reappearance of C-reactive protein probably means that rheumatic fever is still active. The reactivation of rheumatic fever in 95% of cases occurred in the course of 4 weeks after the end of treatment. There was no C-reactive protein in patients with chorea. The presence of C-reactive protein does not establish that the rheumatic fever is active; its absence cannot reject its diagnosis. There is a threshold of the rheumatic fever progress beyond which C-reactive protein reappears. Clinicians found it present in rheumatic fever, glomerulonephritis, lipoid nephrosis, and in virus diseases such as measles, varicella, epidemic hepatitis, and primary infection with tuberculosis. The authors found it present also in leukemia and in typhoid. Stollerman presumes that disappearance of C-reactive protein is due to the hormone action on the inflammation, of which C-reactive protein is a manifestation. The disappearance of C-reactive protein means that rheumatic process is arrested but is not eliminated. The determination of the erythrocyte sedimentation rate, of the presence of C-reactive protein, of fibrinemia, and of the amount of mucoproteins are methods each of which determines the progress of the rheumatic fever. Any one method cannot be used to the exclusion of others. All of them help to observe the progress of the rheumatic process.

Effect of Prednisone in Pulmonary Silicosis. A. Slaviero and E. Gaffuri. Minerva med. 48:1522-1524 (April 28) 1957 (In Italian) [Turin, Italy].

Sixteen patients with silicosis who presented severe respiratory symptoms and who had not derived much benefit from the usual therapy were treated with prednisone for 31 days. The initial dose was of 30 to 40 mg. per day. A maintenance dose was administered as soon as the patients started to improve, and subsequently the dose was gradually diminished. Streptomycin was also administered to some patients in whom latent tuberculosis was suspected. Prednisone therapy had to be discontinued in 1 patient who presented a marked increase in blood pressure. The results were very good in 5 patients; their general condition improved and their respiratory symptoms regressed almost completely. Dyspnea at rest disappeared in 5 patients, and dyspnea on exertion diminished in 5 other patients. The drug had no effect on 3 patients with severe emphysema, 1 of them with chronic cor pulmonale. The drug had a beneficial effect on the cough of these 3 patients. Cough disappeared in 9 other patients and was checked markedly in the remaining 3. Roentgenologic examination did not show any changes.

Modern Treatment of Polycythemia Rubra Vera. U. Cardone and F. Galeazzi. Policlinico (sez. med.) 64:630-637 (April) 1957 (In Italian) [Rome].

Eight patients 32 to 65 years old with polycythemia vera were subjected to repeated removal of blood and to infusions of one-half or one-third of the amount of blood removed with fresh plasma from young donors. One patient had been treated previously with roentgen therapy and another with nitrogen mustard. Some patients already had marked symptoms of the disease and could do little or no work. The treatment was beneficial to all patients. The subjective condition of the patients started to improve after 2 or 3 transfusions. All symptoms had disappeared at the end of the treatment. The size of the spleen was reduced markedly and in some patients returned to normal. The patients could return to their work after the treatment. The hemoglobin level and blood pressure became normal in some patients. The effect of the treatment lasted for some months in some of the patients and for 1 to 2 years in the others. When the hematocrit and red blood cell values increased and the subjective symptoms returned the patients were subjected to a new course of treatment until their condition became normal. The treatment was repeated in one female patient once a year, and she was able to carry on with her occupation for the whole year. The treatment has not caused any complication.

Acute Barbiturate Intoxication. T. Koppanyi. J. Forensic Med. 4:65-71 (April-June) 1957 [Cape Town, South Africa].

Barbiturate coma is a form of anesthesia (light or deep) with varying degrees of areflexia, muscular relaxation, and other signs and symptoms characteristic of anesthesia. Small pupils indicate lighter and large pupils deep anesthesia. Mydriasis, therefore, is an unfavorable sign in barbiturate intoxication and is usually accompanied by marked decrease of the respiratory minute volume, by cyanosis, and very often by a fall in blood pressure and hypothermia. Hyperthermia, which is not infrequently seen in patients who have taken toxic amounts of barbiturates, is usually due to secondary infections, particularly pneumonia. In such cases, moist rales are discovered in the lower lung fields, which progress to bronchopneumonia with consolidation. Gross overdoses of barbiturates kill by direct depression of the respiratory center, and death may occur within an hour after oral ingestion. The majority of the patients do not take this absolute fatal dose, but only a fraction thereof, and may survive in an anesthetized state for 24 hours or more without any treatment. Then they die of respiratory and/or circulatory depression, pulmonary and cerebral edema, or pneumonia. Neither the symptoms nor the postmortem changes of organs and tissues differentiate barbiturate poisoning from other forms of coma or fatal central depression. The differential diagnosis therefore requires chemical identification of barbiturates in the blood and the urine during life, or in organs, particularly the liver and the brain at autopsy. The gastrointestinal contents should be saved for chemical analysis, because it is possible that small amounts of unabsorbed barbiturates are present, particularly when taken in tablet form.

Methods for the chemical identification of barbiturates in blood and tissue are described. The treatment of barbiturate poisoning may be symptomatic, analeptic, or directed toward the removal of barbiturates from the body. Symptomatic therapy includes maintenance of a patent airway and, when necessary, administration of oxygen through the airway, administration of parenteral fluids (2 to 3 liters every 24 hours), hypertonic solutions in patients with pulmonary edema, ascorbic acid to decrease permeability of blood vessels, antibiotics to prevent secondary infections (mainly pneumonia), frequent changing of the patient's position, and periodic slapping of the thorax to loosen bronchial secretions. The use of concentrated human albumin has been suggested for the prevention or treatment of cerebral edema. Picrotoxin and leptazol have been found to be most effective central analeptics in experimental and clinical acute barbiturate intoxication. Carefully supervised administration avoids convulsions and consequently excessively increased cerebral oxygen needs, as well as depression. Central analeptics act as physiological antagonists in barbiturate intoxication; they do not increase the metabolism or excretion of barbiturates. Massive intravenous infusions of isotonic dextrose or sodium chloride solutions in experimental animals (1) shortened the duration of narcosis from average anesthetic doses of barbital and phenobarbital from one-third to one-half that of controls, and (2) doubled the early elimination of these drugs in the urine. Animals receiving 2 or 3 fatal doses of barbital recovered completely under this treatment.

Taussig-Bing's Disease. A. Mispireta, G. Cornejo, A. Corvacho and others. Rev. peruana cardiol. 5:1-11 (Sept.-Dec.) 1956 (In Spanish) [Lima, Peru].

The case of Taussig-Bing's disease reported on by the authors is the first such to be reported from Peru. The diagnosis was made during the life of the patient and was verified by studies of his blood and by autopsy. The parents and family of the patient were normal. The patient was born apparently normal. The mother observed immediately after birth that the infant had palpitation, some dyspnea, and moderate cyanosis. When the patient was hospitalized at the age of 10 years, his mental age corresponded to that of a child 6 years old. He was in poor general condition, with marked cyanosis, acute dyspnea, and clubbed fingers. Phonocardiographic examination revealed accentuation and reduplication of the second pulmonary sound. Roentgen examination showed a complete transposition of the aorta, levoposition and enlargement of the pulmonary artery, and signs of hypertension in the pulmonary circulation. A diagnosis of Taussig-Bing's disease was made. A definite diagnosis was arrived at on determination of the oxygen content of the blood taken by cardiac catheterization. Oxygenation of the peripheral blood was poor. It was of about the same degree in the right ventricle and in the aorta but was increased in the pulmonary artery. The patient lived a few months after hospitalization and died of cardiac insufficiency. The anatomicopathological diagnosis was Taussig-Bing's disease with bivalve pulmonary artery.

Klebsiella Pneumonia Meningitis: Successful Treatment of Adult Case with Cortisone and Antibacterial Agents. R. L. Sterkel and W. A. Knight. Missouri Med. 54:519-524 (June) 1957 [St. Louis].

There are 2 features of meningitis due to Klebsiella pneumoniae: the relative rarity of the condition and the high mortality rate. Including the patient treated by the authors, only 133 instances of the disease have been reported. No age group is spared. The ratio of males to females is 65.6 to 34.4. Thompson and associates state that K. pneumoniae is the causative agent of meningitis in 0.16%. Before the advent of chemotherapy only 4 patients survived, and 2 of these were left with debilitating sequelae. Since the availability of the various sulfonamides and antibiotics, 33 recoveries are reported (50%); 3 of these patients had residual defects. The authors treated successfully a debilitated 79-year-old man with chronic alcoholism who had bacteremia and meningitis due to K. pneumoniae. The treatment consisted of sulfadiazine, penicillin, and streptomycin in conjunction with cortisone. The indications for the use of cortisone in this disease are proposed. There is a definite need for further evaluation, both clinical and experimental, of the role of adrenal steroids in infections.

Klebsiella Meningitis. A. P. Spivack, G. M. Eisenberg, W. Weiss and H. F. Flippin. Am. J. Med. 22:865-871 (June) 1957 [New York].

The authors report on 10 men and 1 woman between the ages of 35 and 80 years with meningitis due to Klebsiella. The focus of infection seemed to be the middle ear in 3, the lung in 2, and the frontal sinus in 1. In the remaining 5 patients there was evidence of recent trauma to the head in 4 and to the lower urinary tract in 1. Klebsiella could be demonstrated on direct smear of the spinal fluid in 6, and in 1 patient typing was done at the time of the smear on the fresh spinal fluid. The organisms cultured from the spinal fluid were typed in 7 patients; 6 were types 1 or 2 and 1 was type 8. One patient recovered and 10 died. Among the 10 patients who died, the hospital course varied from 1 to 6 days. Four patients received no antimicrobic therapy, 4 were treated with sulfonamides alone, 1 received penicillin and streptomycin, and 1 received the latter 2 drugs in addition to tetracycline and polymyxin. The only patient who recovered was treated with streptomycin, sulfadiazine, and penicillin. This patient was infected with type 8 Klebsiella, and there was a possible causative relationship to trauma of the lower urinary tract.

The 11 cases added to 140 collected from the literature make a total of 151 cases of meningitis caused by Klebsiella. The disease is often fulminating. Most cases have occurred in adults. Meningitis is usually secondary to Klebsiella infection of the respiratory tract, is most commonly due to types 1 and 2, and sometimes follows trauma to the head. Diabetes and debilitating diseases seem to be predisposing factors. Metastatic abscesses are frequent. The available information to date suggests that the drugs of choice are the sulfonamides. The status of the broad-spectrum agents, although promising, is equivocal because of the relatively few cases in which they have been used. In view of the serious nature of this form of meningitis it is recommended that both sulfonamides and broad-spectrum antibiotics be administered at once when a gram-negative encapsulated bacillus is found in the spinal fluid.

Aspiration Biopsy of the Parietal Pleura: Results in 45 Cases. R. F. Donohoe, S. Katz and M. J. Matthews. Am. J. Med. 22:883-893 (June) 1957 [New York].

Aspiration of the parietal pleura was performed in 29 men and 16 women between the ages of 15 and 83 years with pleural effusion in an attempt to establish the causation of this effusion. Adequate diagnostic tissue specimens were obtained in 33 patients (73%) and inadequate tissue specimens in 12 (27%). The histological diagnoses in the 33 patients were granulomatous pleuritis in 14, nonspecific pleuritis in 13, malignancy in 4, eosinophilic pleuritis in 1, and normal pleura in 1. Of 23 patients suspected clinically of having tuberculous pleuritis, this suspicion was confirmed by aspiration biopsy in 12. Of 11 patients with a clinical diagnosis of malignant pleural effusion, pleural biopsy specimens yielded evidence of malignancy in 4. Of 11 patients with effusion of undetermined causation, aspiration biopsy yielded adequate tissue specimens in 6 (54%); 2 specimens were consistent with a granulomatous pleuritis, 1 showed eosinophilic pleuritis, and 3 showed nonspecific pleuritis. There were no significant complications associated with aspiration biopsy of pleura.

Aspiration biopsy, a safe, easy, and accurate diagnostic method, thus was of considerable value in patients suspected clinically of having tuberculosis and was less often so in clinically indeterminate cases. The procedure was least useful in patients with malignancy, in whom pleural involvement may be spotty. The histological diagnosis of nonspecific pleuritis does not eliminate the possibility of either tuberculosis or malignancy as the causative disorder. In patients in whom this diagnosis is made after aspiration biopsy, an open biopsy should be performed if not contraindicated. The prime indication for aspiration pleural biopsy is so-called idiopathic pleurisy with effusion. The method, however, should be used as part of the basic evaluation of any effusion requiring diagnostic aspiration. The only contraindication would be a bleeding diathesis.

Renal Lesions of Scleroderma. G. Carpent. Acta clin. belg. 12:181-189 (March-April) 1957 (In French) [Brussels].

Scleroderma is no longer considered exclusively a dermatosis. Kidneys can also become involved, and changes in renal function do occur. Most patients with scleroderma show no symptoms of kidney involvement. The renal lesions become worse with the advancing age of the patient and give no clear indication of the extent of impairment of renal function. Autopsy of patients with scleroderma reveals that lesions identical with those accompanying clear renal insufficiency frequently are found in patients with no signs of renal insufficiency. These lesions are edematous hyperplasia of the intima of the interlobular arteries and fibrinoid necrosis of preglomerular arterioles. They are the same as the lesions of malignant nephroangiosclerosis. The author observed 4 patients with renal scleroderma, 3 of whom presented a correlation between the symptoms of malignant hypertension and the findings at autopsy of malignant nephroangiosclerosis. The 4th patient did not have hypertension, although the renal lesions were similar or identical with those of malignant nephroangiosclerosis. The patient, a 55-year-old male, was treated one year for scleroderma. When he entered the hospital his arterial tension was normal (120/80 mm. Hg), the blood urea content 180 mg. per 100 cc., and there was no albuminurea nor pathological cellular elements. The arterial tension never exceeded 150/90 mm. Hg. There were no symptoms of uremia. He died of bronchopneumonia. Here was discordance between the clinical symptoms and the findings of pathological anatomy. The author quotes the observations of other clinicians on patients with renal lesions of malignant nephroangiosclerosis but with no clinical signs of hypertension. Such observations seem to oppose the currently dominant theory that malignant nephroangiosclerosis occurs as a result of hypertension.

Pulmonary Adenomatosis: Six Cases. P. Purriel, D. Tomalino and S. Piovano. Tórax 6:5-28 (March) 1957 (In Spanish) [Montevideo, Uruguay].

Pulmonary adenomatosis consists of the development of unilateral or bilateral large intrapulmonary nodules of epithelial alveolar cells which merge into a tumor and give rise to metastases. The asymptomatic form is rare. The disease is detected during routine roentgen examination of the chest. The symptomatic form starts, as a rule, with a transient attack of febrile respiratory infection followed by bouts of bronchitis and respiratory symptoms of progressive severity. Bronchorrhea appears only in typical bilateral forms of the disease, depending on the presence of metaplasia of the alveolar mucinous cells. Expectoration consists of a foamy, watery, transparent fluid in daily quantities of 300 to 3,300 cc. In the course of the disease the fluid becomes purulent and later hemorrhagic. This type of bronchorrhea is pathognomonic. Blood spitting is rare. Except for a marked loss of weight, the general health of the patients remains fair for a considerable time. There are no diagnostic tests of specific value. Bronchoscopy is usually negative. Diagnosis is made on the basis of the following factors: (1) chronicity of respiratory symptoms and (2) the presence of a single unilateral or multiple bilateral nodules in the roentgenogram or of gray hepatization in the zone of the lung occupied by the tumor. A definite diagnosis is made on the finding of tumor cells in histological preparations of the sputum and on the results of pulmonary biopsy taken during a thoracotomy. The treatment consists of early lobectomy. This is contraindicated in the presence of symptoms of metastases, bronchopulmonary complications, and aggravations of the respiratory disorders. The duration of the condition varies between 1 year and more than 4 years.

The authors report 6 cases. The patients complained of marked loss of weight. Three patients were men between the ages of 40 and 62. The disease was bilateral and typical. The patients reported late when severe involvement of both lungs and symptoms of metastases contraindicated an operation. The patients died of asphyxia. Autopsy showed a large number of metastases in several viscera and metaplasia of the muciparous alveolar cells. The other 3 patients were women. Their disease was unilateral and asymptomatic, except in a patient who had hemoptysis. A diagnosis was made by lobectomy during a thoracotomy. Metastases occurred in all patients and were the cause of death.

The Significance of Bronchiectasis Associated with Pulmonary Tuberculosis. J. K. Curtis. Am. J. Med. 22:894-903 (June) 1957 [New York].

The author reports on 1 8-year-old boy and 7 men between the ages of 26 and 35 years with bronchiectasis associated with tuberculosis. The cases of the first 3 patients illustrate the 3 principal factors which appear to favor the development of bronchiectasis in tuberculous patients. In the boy, enlarged tuberculous hilar nodes compressed a bronchus; partial obstruction with cough, pooling of secretions, and tubercle formation in the more distal portion of the bronchial tree comprised the elements which lead to bronchiectasis. In a 27-year-old man, severe infiltration of the lung with tuberculous disease associated with a cavitary component presented the second and most common cause of tuberculous bronchiectasis. In a 29-year-old man, tuberculous endobronchitis led to destructive changes in the bronchial walls, resulting in bronchiectasis. The clinical features of tuberculous bronchiectasis are persistent cough and purulent sputum, often tending to subside as the result of antimicrobic therapy. The case of the 4th patient, a 35-year-old man, showed that hemoptysis may be a troublesome occurrence, that protracted bronchitis after an upper respiratory infection is a common sequence, and that at this time the sputum is most apt to be positive for tubercle bacilli. Significant pathological features of tuberculous bronchiectasis were observed in the right upper and middle lobes, which were resected in the 5th patient, a 28-year-old man. Tubercles often lie close to the epithelial surface; this is a dangerous situation when the overlying membrane is ulcerated and ragged. Many bronchiectatic lesions may communicate with cavities or liquefying nodular disease, hence providing a ready source for long-continued positive secretions. The bronchial walls may be greatly thickened by fibrous tissue which hinders the penetration of antimicrobic drugs. Nests of tubercle bacilli lodged in these sheltered areas lie dormant and can survive long periods; when liberated these organisms may cause further disease. The cases of the 3 remaining patients illustrate the importance of bronchiectasis in collapse therapy and surgical resection in patients with pulmonary tuberculosis. Tuberculous bronchiectasis caused failures in pneumothorax treatment and primary thoracoplasties. Careful appraisal of the involved lobe by planigrams and bronchograms is indicated before segmental resection in order to avoid complications associated with the type of tuberculous bronchiectasis which approaches dangerously near the intersegmental plane of dissection. Five patients are reported in whom new cavitary disease with communicating dilated bronchi developed in the segmental plane of a previous segmental resection. Bacteriological relapse was associated in 4, and resection was performed because of hemorrhage in 1.

Thoracic and Pulmonary Lesions Biopsied Under Thoracoscopic Vision. F. Heine. Beitr. Klin. Tuberk. 116:615-627 (No. 8) 1956-1957 (In German) [Berlin].

Diagnostic pulmonary punctures have been carried out with simple injection cannulas or with the puncture cannulas that are used for liver puncture. Many investigators regard aspiration biopsy of the lung as too dangerous and not sufficiently informative. The author describes a method that enables the examiner to obtain a biopsy specimen from the lung or from the inner wall of the thorax under thoracoscopic control; wide exposure of the thorax is unnecessary. It must be possible, however, to induce a (diagnostic) pneumothorax to an extent that instruments can be introduced with the aid of a trocar from 2 entrance punctures, as when thoracocautery is to be carried out. Illumination is furnished by a thoracoscope, and the biopsy specimen is obtained with a punch. The mouth of the punch is constructed in such a way that one jaw cuts over the other. This cutting action is important for the elastic pulmonary tissue. Furthermore the larger jaw of the punch has a cross bar so that the biopsy specimen will not slip out. The punch turns on its shaft so that the surface of the tissue to be biopsied can be approached in an optimal position. A diathermy sphere on a long shaft is available in order to arrest a possible hemorrhage. After the specimen has been obtained, 2 Monaldi catheters are introduced to remove the pneumothorax with the aid of a pump providing negative pressure.

The author presents 13 patients in whom the method was employed, and in 12 of them a diagnosis was established with the aid of the biopsy specimen. Serious complication, such as air embolism or infection of the pleural cavity, did not occur. When bleeding occurred it could be controlled with the aid of the diathermy sphere. In 10 of the 13 patients the lung had become completely reinflated on the second day after the intervention. The described method of pulmonary biopsy is superior to blind puncture because it is carried out under visual control at the site deemed optimal for diagnostic study; the biopsy specimen is of adequate size; and it is taken from the surface of the lung, so that the effect can be watched.

SURGERY

Arterial Embolectomy and Mitral Commissurotomy. P. Chalnot, R. Benichoux, C. Pernot and J. Dege. Presse méd. 65:1115-1118 (June 15) 1957 (In French) [Paris].

Arterial emboli in the limbs usually come from a thrombus formed in the left atrium after it has become enlarged as a result of mitral stenosis. The combination of arterial embolism and mitral commissurotomy has therefore become familiar to physicians. Patient with arterial embolism in the limbs may be treated by three methods: (1) the surgical removal of an embolus occurring some hours after mitral commissurotomy, which often has to be carried out as an emergency procedure; (2) mitral commissurotomy, with its necessary corollary, atrial thrombectomy, which may be deliberately decided on in a patient who has lately had an arterial embolectomy but which is not yet accepted as a standard procedure; and (3) embolectomy, if not amputation, which last may be the only possible treatment and which is still unfortunately the one most frequently used. These methods have been used by the authors in treating 49 cases of arterial embolism in the limbs (including the aortic arch) in 42 patients, 35 of whom also had mitral stenosis, either alone or in association with aortic involvement. The results obtained in these 35 patients provide a basis for comparative evaluation of the first 2 procedures as applied to patients with mitral stenosis.

The second procedure, that is, commissurotomy after an arterial embolectomy, was used in 23 patients, 21 (91%) of whom have survived. Two of the patients have a follow-up of only 6 months and 10 months, respectively, but in all the rest the follow-up ranges from 1 to 3 years. These results contrast sharply with those obtained in 8 patients who, for various reasons, were treated by embolectomy alone, without a subsequent commissurotomy, 6 of whom died within from 2 days to 6 months, 3 from cerebral embolism and 3 from cardiac insufficiency and myocardial failure. One of the remaining 2 has been lost to follow-up and the other, 6 months after operation, presented signs of uncontrollable myocardial insufficiency. Mitral commissurotomy after embolectomy therefore appears to be the treatment of choice in patients with mitral stenosis associated with arterial emboli in the limbs.

Mitral commissurotomy, however, still presents many difficulties when the left atrium is thrombosed. Attempts have been made to overcome these difficulties and to prevent massive peroperative embolism by gentle manipulation and complete curettage of the atrium, but these measures are not entirely satisfactory. The authors have devised a small instrument resembling an umbrella, called the parathrombus, which is designed to prevent the passage of thrombi through the mitral orifice. Blood passes freely through the fabric of the instrument but the thrombi are trapped by it as they are dislodged and can be removed all at once when the instrument is closed and withdrawn from the atrium.

The authors believe that the large amounts of blood often lost during commissurotomy complicated by atrial thrombosis should be replaced so that the blood volume and arterial pressure are restored. This will force small embolic particles toward the most peripheral arteries, where a collateral circulation can easily become established and where obliteration is better tolerated.

Results of Surgery in the Treatment of Pulmonary Tuberculosis. S. J. Viikari, V. Autio and P. Antila. Ann. chir. et gynaec. Fenniae 46:205-216 (No. 2) 1957 (In English) [Helsinki].

Of 329 patients with pulmonary tuberculosis operated on with the aid of endotracheal anesthesia, extrapleural pneumothorax was performed in 133, thoracoplasty in 117, and pulmonary resection in 79. All the patients had been treated with streptomycin, aminosalicylic acid, and isoniazid for 3 to 6 months before the operation, and the antituberculous drug therapy was continued for from 3 to 6 months postoperatively. The primary mortality in the extrapleural pneumothorax groups was 0.8%, and favorable results were obtained in 93.7% of the patients. The longest follow-up period in this group was 3 years, and only 5 patients were followed up for periods from 3 to 6 months. The extrapleural pneumothorax was terminated about 18 months after its induction, and the lungs had expanded without difficulty. The primary mortality in the thoracoplasty group was 5.1%. Favorable results were obtained in 82% of the patients. The longest follow-up period was 4 years, and 7 patients were followed up for from 3 to 6 months. Of the 79 patients in the resection group, 18 had a pneumonectomy, 6 a lobectomy combined with segmental resection, 27 a lobectomy, and 28 a segmental resection. Two of the 18 patients who had pneumonectomy died, a primary mortality of 2.5%. Bronchial fistula occurred in 2 patients, and empyema appeared in the resected area in 1 patient. The results were favorable in 74 patients (93.7%), but 24 of these had been followed up for only 3 to 6 months.

Of 316 patients in whom follow-up examinations were carried out, 287 (90.8%) obtained favorable results from surgical procedures, 12 (3.8%) had died, and 17 (5.4%) still had Mycobacterium tuberculosis in their sputums. In the assessment of the relative merits and disadvantages of the various surgical procedures, the evaluation of the postoperative function of the lungs is of primary importance besides the recovery rate. Only follow-up examinations of large series of patients can give a reliable answer concerning this problem. In the authors' experience the decrease in pulmonary function resulting from extrapleural pneumothorax and particularly that resulting from segmental resection varies greatly in the individual patient and can be predicted only with difficulty in borderline cases. The decrease in function after a 5-rib thoracoplasty is constantly slight and can be predicted more easily even in borderline cases.

On the Surgical Treatment of Chylothorax Due to Traumatic Lesions of the Thoracic Duct in the Thorax: Experimental Research. L. Giordano. Minerva med. 48:1515-1519 (April 28) 1957 (In Italian) [Turin, Italy].

Experimental chylothorax was produced in 6 large dogs, 4 of which were subsequently subjected to surgical treatment for the correction of this condition. Symptoms of chylothorax appeared in the 4 dogs 2 weeks after they had been operated on. The other 2 dogs were killed 2 months after the operation. Some clear yellow liquid was found in the pleural cavity of these 2 dogs at autopsy; the lungs and the heart were normal, the lymph nodes were not enlarged, and there was no ascites. The animals with chylothorax were operated on atfer 15 to 20 days while they were still in condition to survive the operation. The animals were anesthetized and intubated. Two to 3 cc. of a blue-colored vital lymphatic substance was injected in the interdigital space of the left hind leg. An incision was then made on or near the scar of the operation through which chylothorax had been created. A large quantity of the colored substance was found after opening of the pleura. The ends of the resected duct were easy to find, thanks to the blue color which they had assumed. A silk ligature was placed on either end of the resected duct, and the thorax was closed. All the animals recovered and were killed 1 to 3 months after the second operation. Lymph was not found at autopsy, the duct was occluded, and there was evidence that collateral lymphatic channels had developed.

Pancreatoduodenectomy for Carcinoma of the Pancreas in an Infant: Report of a Case. W. F. Becker. Ann. Surg. 145:864-870 (June) 1957 [Philadelphia].

A 15-month-old boy was admitted to a New Orleans hospital in January, 1956, because of massive hematemesis and melena of 6 hours' duration. He was considered normal during the first six months of life; then he began to eat poorly, failed to gain weight, refused to play, and experienced abdominal pain. A hard, nontender, movable mass produced a visible prominence of the upper anterior abdominal wall. Contrast studies of the stomach and duodenum suggested that an enlarged duodenal bulb and a widened duodenal loop were stretched around a mass which lay within the duodenal loop. The roentgenographic diagnosis was "mass arising in the head of the pancreas." Exploratory laparotomy was advised but refused, and the patient was discharged from the hospital. Ten days later he was admitted to another hospital because he had again passed multiple bright red stools. While the child was being prepared for an elective operation, massive hematemesis and melena recurred, and emergency laparotomy was required. The preoperative diagnosis, based largely upon roentgenographic findings, was tumor of the head of the pancreas with extension into the duodenum and massive hemorrhage. At operation the proximal two-thirds of the pancreas was found to be replaced by a hard, fairly well circumscribed, 7-cm. mass. The spleen was twice the normal size, and there were many dilated tortuous veins at its hilum.

Resection of the distal half of the stomach, proximal three-fourths of the pancreas, gallbladder, common bile duct, duodenum, and proximal jejunum was performed. Reestablishment of the gastrointestinal and the biliary-intestinal continuity was effected by a hepaticojejunostomy and a gastrojejunostomy. At the most recent examination, 10 months after the operation, when the boy was 25 months, he appeared normal. The author cites the 6 authenticated cases of primary carcinoma of the pancreas in persons under 13 years of age. This is believed to be the first report of a pancreatoduodenectomy in an infant.

Duodenal Ulcer Treated by Gastro-enterostomy with Vagotomy. F. D. Hindmarsh. Lancet 1:1113-1115 (June 1) 1957 [London].

The author reviews observations on 197 patients with duodenal ulcer in whom he performed vagotomy and posterior gastrojejunostomy according to a standardized technique. The patients selected for this operation were those in whom chronic ulcer or scarring was demonstrated roentgenologically and confirmed by laparotomy. Acute hemorrhage, in which partial gastrectomy may be life-saving, is a contraindication to gastroenterostomy with vagotomy. To ascertain the results of the surgical treatment, each patient was interviewed at the end of the first year and was later sent circular letters. Of the 197 patients operated on, 1 died after the operation and 2 subsequently from cerebral hemorrhage, and 1 was not traced, leaving 193, all of whom were reviewed in the last 6 months. The author found that the results to date of the standardized procedure of vagotomy combined with a large stoma, drainage, and posterior gastrojejunostomy were encouraging, since they were satisfactory in 189 and unsatisfactory in only 4 of the patients. This review supports the opinion of Oberhelman and Dragstedt in 1955 that, provided vagotomy is complete and drainage adequate, the results will compare favorably with any other operation so far devised to treat duodenal ulcer.

Pancreatitis, a Diagnostic Clue to Hyperparathyroidism. O. Cope, P. J. Culver, C. G. Mixter Jr. and G. L. Nardi. Ann. Surg. 145:857-863 (June) 1957 [Philadelphia].

The diagnosis of hyperparathyroidism generally depends upon the presence of a complication of the primary metabolic disorder. In only a rare instance has the disease been identified in the absence of the classic bone disease, urinary tract calcification, or peptic ulceration. The symptoms due to the hypercalcemia itself, such as fatigue, lassitude, and dyspepsia, are so uncharacteristic and so common in the population that dependence upon them to call the diagnosis to the attention of the clinician has proved unrewarding. The authors present the histories of 2 patients with hyperparathyroidism treated at the Massachussetts General Hospital who also had pancreatitis. Acute pancreatitis became evident in the first patient during a phase of known hyperparathyroidism. In the second, who was under treatment for recurrent pancreatitis, the diagnosis was established fortuitously. These experiences, one the converse of the other, suggested that pancreatitis is another complication of hyperparathyroidism. If this is true, all patients with pancreatitis should be screened for hyperparathyroidism. Patients believed to have hyperparathyroidism may develop pancreatitis. The striking features in these 2 patients prompted a review of the literature. It was found that the association of hyperparathyroidism and pancreatitis, either with or without pancreatic calculi, had been recorded in isolated case reports.

Consideration of a causal relationship between pancreatitis and hyperparathyroidism hinges on which disease plays the primary role. It appears likely that the overactivity of the parathyroids initiates the pancreatitis, although the reverse is possible. The authors visualize the following sequence of events: (1) the development of hyperparathyroidism, (2) the formation of pancreatic calculi, either superimposed on tissue trauma or as a primary precipitation of calcium, and (3) ductal obstruction and pancreatitis. The prompt subsidence of the pancreatitis following parathyroid adenomectomy in 1 of the 2 patients may be explained by the relief of ductal obstruction upon resorption of the calculi following the return of a normal serum calcium level.

Management of Intussusception in Infants and Children. J. F. Langlet and D. P. Chance. A. M. A. Arch. Surg. 75:35-40 (July) 1957 [Chicago].

Intussusception is seen most frequently in the first 2 years of life and constitutes one of the most common abdominal emergencies. Intussusception may be reduced by air insufflation or enemas, and at the time of operation by manual taxis. Patients with intussusceptions which are irreducible by the above means or are gangrenous may be treated by a variety of surgical means: (1) resection with immediate anastomosis; (2) resection with formation of a double-barreled enterostomy and subsequent closure; (3) suture of the serosa of the invaginated barrel of the intussuscipiens, followed by resection of the gangrenous intussusception through an incision in the ensheathing intestine; (4) lateral anastomosis about the lesion; (5) ileostomy with secondary resection; and (6) various combinations of the above. Of the 19 children admitted with acute intussusception, the etiological factor was found to be a Meckel's diverticulum in 2 and an ileal polyp in 1. In the remainder the intussusception was of the idiopathic variety. The age range of the 14 boys and 5 girls was from 1 month to 2½ years. The parents gave a history of a well baby who suddenly began to have acute, colicky abdominal pain, which recurred in association with vomiting and bloody stools. The patients appeared some time after onset to be pale, listless, dehydrated, and acutely ill, with a rapid pulse. The abdomen was frequently distended, palpation revealing a sausage-like mass. Barium enemas, attempted in 16 cases, were successful in the reduction of the intussusception in 6 of the 19 cases in this series. No reduction or incomplete reduction was effected in 9 cases, the barium enema studies being within normal limits in 1 patient with an ileoileal intussusception. Of the 13 patients requiring surgical management, spontaneous reduction was found to have taken place in 2 and reduction by manual taxis was completed in 7; in 4 cases the intussusception was irreducible or gangrenous, requiring resection. A better understanding of the management of body fluids and electrolytes, recently developed antibiotics, and improved pediatric and anesthetic care have greatly reduced the mortality rate in the past decade. Packard reported a 50% mortality rate in 4 cases in the period 1934 to 1944 and no mortality in the 8 cases treated in the period 1944 to 1954. Dennis reports 8 consecutive successful resections and Thatcher reports a 6% mortality in 15 cases requiring resection from 1947 to 1953 in contrast to a 55% mortality in 20 cases prior to that time.

Spine Fusion in Young Children: A Long-Term End-Result-Study with Particular Reference to Growth Effects. H. Hallock, K. C. Francis and J. B. Jones. J. Bone & Joint Surg. 39A:481-491 (June) 1957 [Boston].

A clinical and roentgenographic study was made of the effects of spine fusion on the growth of the fused vertebrae in 15 patients, 5 male and 10 female, who had been subjected in early childhood to a Hibbs type of spinal fusion for tuberculosis and who were followed into adolescence and adult life for from 12 to 31 years. Fusion was successful in all patients, and the lesions of the spine healed. Since in all of these patients at least 2 normal vertebrae had been included in the fusion above and below the diseased area, a unique opportunity was offered to study the effects of arthrodesis on growth in fused normal vertebrae as well as in diseased vertebrae.

The growth changes observed were narrowing of the intervertebral disk spaces in the fusion area with occasional partial obliteration, a trapezoid development of the end vertebrae, and underdevelopment of the fused vertebral bodies in both the sagittal and frontal planes. Whenever possible measurements were made directly on lateral roentgenograms of the entire fused area, 2 normal-appearing vertebrae included in the fusion above and below the diseased area, and 2 or 3 normal contiguous vertebrae above and below the fusion. The measurements made on early postoperative roentgenograms were compared with those on late roentgenograms showing final results. The end-results were compared with the original measurements in terms of percentage increase over 100, in order to eliminate the error of unknown early target-to-tube distance and an increase in the target-to-spine distance caused by growth in thickness of the patient. It was found that considerable variation of growth occurred even in persons of similar age at operation. On an average, the entire fusion area grew anteriorly 37% less and posteriorly 45%

digital space of the left hind leg. An incision was then made on or near the scar of the operation through which chylothorax had been created. A large quantity of the colored substance was found after opening of the pleura. The ends of the resected duct were easy to find, thanks to the blue color which they had assumed. A silk ligature was placed on either end of the resected duct, and the thorax was closed. All the animals recovered and were killed 1 to 3 months after the second operation. Lymph was not found at autopsy, the duct was occluded, and there was evidence that collateral lymphatic channels had developed.

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Resection of the distal half of the stomach, proximal three-fourths of the pancreas, gallbladder, common bile duct, duodenum, and proximal jejunum was performed. Reestablishment of the gastrointestinal and the biliary-intestinal continuity was effected by a hepaticojejunostomy and a gastrojejunostomy. At the most recent examination, 10 months after the operation, when the boy was 25 months, he appeared normal. The author cites the 6 authenticated cases of primary carcinoma of the pancreas in persons under 13 years of age. This is believed to be the first report of a pancreatoduodenectomy in an infant.

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Malignancy of Solitary Adenomas. K. Keminger. Klin. Med. 12:233-240 (June) 1957 (In German) [Vienna].

Of 15,700 thyroidectomies performed at the surgical department of the Empress Elizabeth Hospital, in Vienna, between 1945 and 1955, 1,290 were done for solitary adenoma and 9,678 for multiple adenoma. Of the 1,290 solitary adenomas, 33 (2.55%) were malignant or suspected to be malignant, while of the 9,678 multiple adenomas 122 (1.26%) were malignant or suspected to be malignant. Solitary adenomas thus are twice as frequently malignant as multiple adenomas. Of the 33 malignant solitary adenomas, 7 occurred in patients between the ages of 20 and 30 years and 9 in patients between the ages of 40 and 50 years; patients in the younger age groups, therefore, have been predominantly affected, while an increase in the incidence of all the malignant goiters occurs only with advanced age (age of carcinoma). Of the 33 solitary adenomas, 9 were papillary adenocarcinomas, 5 malignant adenomas, 4 Langhans' goiters, 1 Hürthle-cell tumor, and 14 were suspected to be malignant. The large number of tumors suspected to be malignant shows how difficult the decision is whether or not the tumor is to be considered malignant. The number of borderline cases is particularly great in the thyroid in which the microscopic picture is highly polymorphous and the boundary between a marked tendency to proliferation and atypical, already malignant growth is indistinct. The development of solitary adenoma seems to have an origin which differs from that of multiple adenoma; while multiple adenoma probably represents a form of hyperplasia, the development of the solitary adenoma seems to correspond more to that of a tumor. The high incidence of malignant adenomas in patients with single nodules makes increased caution advisable but does not justify surgical treatment of every goiter in young patients in whom a nodule may be palpated, since solitary adenomas the presence of which is suspected from palpation findings are rarely solitary in reality.

Ligation of the Internal Mammary Arteries in the Treatment of Patients with Angina Pectoris. F. De Matteis, C. Barocelli and G. Barbano. Minerva med. 48:1920-1926 (May 30) 1957 (In Italian) [Turin, Italy].

Twelve patients, 45 to 65 years of age, with angina pectoris were subjected to ligation of the 2 internal mammary arteries in the second intercostal space. Six patients presented myocardiosclerosis with electrocardiographic signs of ischemic damage, a well-compensated general circulation, and anginal syndrome only on exertion. The remaining 6 patients presented a postinfarction anginal syndrome which they had developed at least 3 months after the infarction. Previous medical treatment had no beneficial effect in all 12 patients. The operation produced immediately satisfactory results in 8 of the 12 patients; stenocardial disturbances disappeared completely or in part. The results were very good in 4 patients and good in the other 4. Electrocardiographic improvement occurred in only 2 of the 8 patients. This improvement was already marked in one patient 2 hours after the operation; normal values were observed 48 hours after the operation. The same patient had a relapse 3 months after the operation; stenocardial episodes and mild ischemia were observed. Observations made one year after the operation showed that the subjective condition of the 8 patients had remained good. Some improvement was noticed in one of the 4 patients in whom the operation had had no immediate beneficial effect. One patient died 8 days after the operation because of bronchopulmonary involvement. Changes in the size of the heart were not observed.

Surgical Treatment by Pulmonary Exeresis in Tuberculous Children. C. Wapler, A. Libert and B. Voisin. Presse méd. 65:1143-1146 (June 19) 1957 (In French) [Paris].

Resection is suggested as a method complementary to the administration of antibiotics, in cases where antibiotics alone fail to accomplish a cure of tuberculous lesions. The authors performed pulmonary resection on 26 children, aged 8 to 16, of whom 16 were girls and 10 boys. The children came from poor homes. Their medical history was unknown, and they had received no antibiotics before admission to the hospital. The course of the disease was advanced at the time of the operation. The results of operation were satisfactory; 23 children made a good recovery and 2 relapsed, and antibiotic treatment was resumed for them. The indication for resection in a child is advanced stage and numerous lesions in puberty. Resection is more clearly indicated in children than in adults. Postoperative spread of lesions was observed in 2 patients. A systematic description of the lesions can be obtained by comparing the anatomic and the pathological features with the clinical and radiologic findings. Only such a description will determine the limits of indication for surgical therapy.

Gastric Glomus Tumor: Report of Case and Review of Literature. E. Shocket, H. C. Moeller, E. L. Cheatle and others. Gastroenterology 32:1145-1151 (June) 1957 [Baltimore].

A 66-year-old patient with myelofibrosis and compensatory hematopoiesis of the liver and, presumably, of the spleen, was found on roentgenogram to have a persistent defect in the antrum of the stomach. Laparotomy with local excision established the gastric lesion to be a glomus tumor. The patient was followed for 9 months after the operation. His vigor had returned, although he was still troubled by easy satiety. Roentgenograms of the stomach revealed some deformity of the antrum at the operative site, which was significantly smaller than it had been 5 months after the operation, and was compatible with postoperative scarring. This patient was the 8th with gastric glomus tumor reported on in the literature. The typical epithelioid appearance of these tumors allows them to be confused with carcinoids. The occurrence of glomus tumors in regions of the body where normally there are no glomera is explained. All but one of the patients with gastric glomus tumor were males; the patients were over 40 years of age. Gastrointestinal bleeding was present in half of the patients. A definite ulceration was demonstrated in the mucosa overlying the tumor. The tumor itself was usually somewhat encapsulated and found in the submucosa or muscularis. None of these tumors was considered malignant. Local excision would seem adequate treatment of a known glomus tumor.

Cardiac Monitor for Detection and Differentiation of Cardiac Standstill, Ventricular Fibrillation, or Peripheral Vascular Collapse During Surgery. R. Simpson, B. Abrams and A. S. Gordon. Surg. Gynec. & Obst. 105:110-113 (July) 1957 [Chicago].

A relatively low incidence of permanent survival after cardiac arrest (cardiac standstill or ventricular fibrillation) results from failure to recognize the condition immediately and resultant delay in starting effective therapy. Cardiac resuscitation is usually successful if there has been proper diagnosis and institution of adequate therapy within 4 minutes from time of onset. The most common cause of poor outcome is failure to detect the condition, as the bulk of the reported series are those of large general hospitals with staffs well indoctrinated in the immediate treatment of cardiac standstill, ventricular fibrillation, and peripheral vascular collapse. The practical cardiac monitor used here is a small, simple, portable, inexpensive, explosion-proof, transistorized, battery-powered unit which provides a continuous instantaneous visual pattern of the electrical activity of the heart. It has proved reliable and efficient in reflecting tachycardia, bradycardia, and extrasystoles and has accurately detected cases of cardiac standstill, ventricular fibrillation, and peripheral vascular collapse. Its use in the emergency or admitting rooms makes possible an immediate assessment of critically ill patients. Since the normal heartbeat causes regular pulsations of the galvanometer needle, the observer is able to discern the onset of ventricular fibrillation by the small, irregular, and highly erratic oscillations lacking regularity of rate and amplitude and of cardiac standstill where the movements of the galvanometer cease. The amplitude of the oscillations is not visibly affected by the profound hypotension of the pulseless patient in peripheral vascular collapse; thus, the differentiation of the latter condition from that of cardiac standstill and ventricular fibrillation is possible without resort to thoracotomy.

An Evaluation of Portacaval Shunts for Portal Hypertension. G. A. Hallenbeck and E. Shocket. Surg. Gynec. & Obst. 105:49-60 (July) 1957 [Chicago].

Portal hypertension occurs in man when the portal system blood flow is impeded either within the liver by cirrhosis or other diseases or outside the liver by diseases of the portal vein and its tributaries. Portal decompression by some form of portacaval anastomosis seemed a natural solution to the problem of bleeding from esophageal varices. Operative technique soon resolved itself about the anastomoses between the portal vein and vena cava (end-to-end and side-to-side) and the splenic and left renal veins (end-to-side). Of the 47 patients, with an age range of 5 to 73 years, 43 had cirrhosis and 44 had experienced hematemesis. Acceptable evidence for a diagnosis of esophageal varices includes positive evidence in the esophagogram or on esophagoscopic examination with a history of bleeding eliminated by esophageal tamponade. Of the 47 operations 29 were direct portacaval shunts (1 side-to-side; 28 end-to-side) and 18 were splenorenal shunts. The hospital mortality of the portacaval shunt was 20.7% and of the splenorenal shunt (accompanied by splenectomy) was 5.6%, with a collective mortality of 14.9%. The hospital mortality rate was a function of and reflected the degree of liver function impairment, lending strength to the belief that patient selection does greatly influence the hospital mortality rate. Although postoperative data are scanty and somewhat inconclusive, portacaval shunts are believed to be more effective in relieving portal pressure than the splenorenal shunts. The difference between portacaval and splenorenal subsequent postoperative bleeding propensity is negligible. The 47 patients experienced a total of 75 hemorrhages during the 12-month preoperative period, while the survivors (40) experienced only 4 hemorrhages during a similar postoperative period. The effect of portacaval shunts on hepatic function is not readily apparent as a transient depression of hepatic function ensues postoperatively. Very few of the patients showed improved hepatic function and a like number showed correspondingly reduced function, the greater portion of the patients remaining unchanged. Neurological symptoms did not appear in any of the 17 patients after splenorenal anastomoses. Varying degrees of neurological symptoms did develop subsequently in 6 of the 23 surviving portacaval shunt patients. A widespread thrombus in the portal system was the cause of the one death in the splenorenal series. More high-risk patients have been subjected to portacaval shunts than to splenorenal shunts. Portal decompression is planned for those who have bled from varices and whose hepatic function has been adjudged adequate to withstand operation.

Postoperative Collapse Due to Adrenal Insufficiency Following Cortisone Therapy. G. Slaney and B. N. Brooke. Lancet 1:1167-1170 (June 8) 1957 [London].

Patients who have received cortisone are liable to collapse when later submitted to the stress of an operation. There is evidence that this state of shock is the outcome of adrenal insufficiency due to atrophic changes within the adrenal cortex induced by corticosteroid therapy. Death in 3 patients could be explained only on these grounds. Shock was successfully treated in 4 other patients by the further administration of cortisone, though one eventually died. Cortisone should be administered prophylactically to any patient undergoing operation who has had corticosteroid therapy within a year, and possibly 2 years, of the operation; cortisone cover should include the operation period and should be withdrawn during convalescence. The suggested dosage for prophylactic treatment is presented in a table. The scheme is based on the fact that cortisone administered orally is most effective from 4 to 8 hours later; intramuscularly, 8 to 12 hours later; and intravenously (as hydrocortisone), almost immediately but only for a short time.

Since the authors have given corticosteroid cover immediately before, during, and after operation, postoperative shock has been conspicuous by its absence in 8 patients severely ill with ulcerative colitis after previous corticoid therapy: 10 operations were performed with uninterrupted recoveries. One of the patients undergoing primary colectomy is of particular interest because, though his blood pressure did not fall after this major operation, it fell after a minor operation undertaken subsequently when cortisone cover had been withdrawn. The complications usually associated with cortisone therapy must be expected while prophylactic cover is being maintained, especially a tendency to infection and septicemia. Such infections require larger doses of antibiotics than usual for their control. In any patient for whom corticosteroid therapy is contemplated, careful consideration should be given to the likelihood of operation being needed. Operative risks are increased by antecedent administration of cortisone.

Functioning and Nonfunctioning Adrenal Cortical Tumors. P. Heinbecker, L. W. O'Neal and L. V. Ackerman. Surg. Gynec. & Obst. 105:21-33 (July) 1957 [Chicago].

There is no constant clinical syndrome associated with adrenal cortical tumor, as the symptomatology is dependent on the type of cortical hormones elaborated by the tumor. Thus, adrenal tumors are less apt to produce a "pure" syndrome than the adrenal hyperplasias. The chief symptoms and findings in Cushing's syndrome are central obesity with acral wasting, profound depression, florid round face, bruising, purplish striae, hypertension, amenorrhea, susceptibility to infection, poor healing of wounds, and back pain, occasionally with collapse of vertebrae. Some 80% of the adrenal tumors producing Cushing's syndrome occur in females, while a larger percentage (76%) of these same cases occur in females over the age of 12. Virilization may result in advanced bone age in children, whereas Cushing's syndrome may be associated with retarded bone age. The diagnosis of virilizing syndromes is confirmed not by abnormalities in blood cell count, carbohydrate metabolism, or plasma electrolytes but by the increased amounts of 17-ketosteroids in the urine due to either tumor or hyperplasia of the adrenal cortex. Allen's test for dehydroisoandrosterone is useful in differentiating tumor from hyperplasia, since patients excreting exceptionally large amounts of dehydroisoandrosterone were all found to have tumors. Polycythemia, leukocytosis with a lymphopenia, and a decrease in circulating eosinophils; a diabetic-type glucose tolerance curve; increased capillary fragility; osteoporosis; and hypokalemic hypochloremic alkalosis have all been found among patients exhibiting Cushing's syndrome. The urinary excretion of 17-ketosteroids and 17-hydroxycorticosteroids are more apt to be higher in Cushing's syndrome due to malignant tumor than in Cushing's syndrome due to adrenal hyperplasia. Further differentiation is possible (1 case observed) in that cortisone will suppress the urinary excretion of 17-ketosteroids in Cushing's syndrome due to adrenal hyperplasia but will not affect that excretion of 17-ketosteroids due to tumor. Pathologically, tumors with fairly regular nuclei but with capsular invasion and invasion of veins are associated with a malignant course. Accessory findings helpful in differentiating benign and malignant tumors are necrosis, calcification, pleomorphism, and nuclear atypia.

The mortality rate following removal of a cortical tumor in Cushing's syndrome was exorbitantly high (56.3%) when substitution therapy was lacking or was inadequate. This rate was reduced to 20.6% due to better replacement therapy. Atrophy of the remaining normal adrenal cortex resulted in postoperative cortical insufficiency with a high mortality rate. Excision of adrenal tumors in the androgenital syndrome is accomplished at a much lower mortality rate than above due to lower incidence of atrophy in the contralateral adrenal cortex. Long-term results following removal of benign tumors are favorable, while the results with malignant tumors are poor, only 1 of 10 patients being alive and well at a 10-month follow-up.

Nitrogen Mustards in Preoperative Treatment of Cancer of Digestive Tract. M. Maur and S. Zampini. Semana méd. 23:759-765 (May 30) 1957 (In Spanish) [Buenos Aires].

The authors used derivatives of dichlorodiethyl sulfide (Yperite) for the alleviation of symptoms of cancer of the digestive tract. Nitrogen mustard was used in the preoperative treatment of 4 patients with advanced cancer of the digestive tract. The first patient treated had a tumor of the stomach about 2 cm. below the cardia, of 1½ years' duration, with increasing dysphagia for 7 months. Dysphagia disappeared after the 7th injection of nitrogen mustard. The second patient presented symptoms of extensive carcinomatous infiltration of the lesser and greater curvatures of the stomach, poor general condition, and severe pain for the past 2 years. Nitrogen mustard treatment brought about disappearance of pain and of dysphagia. The third patient had a palpable tumor in the right iliac fossa, 13 by 6 cm. in diameter; the radiologic examination showed a tumor of the cecum and of the ascending colon. Treatment with nitrogen mustard brought about diminution of the size of tumor by 50% and improvement in the general condition. Nitrogen mustard therapy made possible an easy excision of the tumor in these 3 patients. The 4th patient had a tumor in the pelvis, a small hepatic metastasis, and carcinomatosis involving the posterior and lateral peritoneal surfaces. The first operation brought about only palliative results. The administration of nitrogen mustard permitted a second operation 6 months after the first. The result was satisfactory. The authors believe that nitrogen mustard can be used in the preoperative treatment of all types of cancer considered inoperable on the basis of clinical examination.

Diagnosis and Treatment of Diastematomyelia. G. Perret. Surg. Gynec. & Obst. 105:69-82 (July) 1957 [Chicago].

In the past 2 years 5 verified cases of diastematomyelia were diagnosed and treated at the University Hospital at the University of Iowa. All of these patients presented obvious cutaneous defects, underlying spinal canal defects, and associated neurological disorders. This condition is more frequent in females than males and in infancy and childhood. A bony, cartilaginous, or fibrous septum is a characteristic feature of the malformation. Other symptoms, depending on the extent and location of the malformation, include weakness, atrophy, maldevelopment and malformation, associated disturbances in gait and stance, disturbances in sensation, reflex changes, impaired function of the bladder and rectal sphincter, and secondary infections, ulcerations, and trophic changes of anesthetic areas. In the 5 cases studied a diagnosis of congenital spinal anomaly was made clinically. Further diagnosis of diastematomyelia is contingent upon roentgenologic and myelographic examinations and surgical verification. Cutaneous defects were present in all of the cases; 4 patients had symptoms of hypertrichosis, characterized by long, soft, silky hair lying in the midline of the back over the region of the underlying bony anomaly. In the lumbar and lower thoracic regions the "upward migration" of the cord is impeded by the presence of a bony, fibrous, or cartilaginous malformation of the spine producing considerable tension on the spinal cord proper and ultimately neurological disturbances. Operative technique (via laminectomy) provides for the removal of the cord-transfixing elements and mobilization of the spinal cord and is considered prophylactic rather than curative. Patients so treated have either improved clinically or failed to show progression in their neurological disturbances.

Closing of Atrial Septal Defects with the Aid of Hypothermia. D. E. Thomas. U. S. Armed Forces M. J. 8:784-788 (June) 1957 [Washington, D. C.].

Atrial septal defects are sometimes cribriform, that is, there may be a large defect and several small ones. Operation under direct vision is therefore preferable to the closed methods, because it has the following advantages: (1) more complete closure of the defect, (2) detection and correction of associated anomalies such as pulmonary venous drainage into the right atrium, and (3) protection of the coronary sinus from partial or complete occlusion by a suture. The author reviews observations on 18 patients in whom operations were performed under the guidance of Swan and his group, who have had great experience in interatrial surgery under direct vision during hypothermia. Seventeen of the 18 operations were performed with the aid of hypothermia and 1 with the bubble oxygenator. Ten patients were less than 10 years of age, 4 were 20 to 30, and the remaining 4 were 30 to 38 years of age. In general, there was a history of retarded growth, dyspnea on exertion without cyanosis, and frequent respiratory infections. Lack of cyanosis is to be expected, because the shunt is from let to right. The severity of symptoms varied. The patients were generally underdeveloped and underweight. There was increased vascularity of the lung fields, enlargement of right auricle and ventricle, posterior displacement of the esophagus by the right auricle, and increased pulsation of the pulmonary artery. Electrocardiograms often showed incomplete right bundle-branch block and evidence of right ventricular hypertrophy. Cardiac catheterization revealed evidence of a left-to-right shunt at the atrial level with increased oxygenation of the blood. Mild to marked right ventricular and pulmonary artery hypertension was frequent.

There were 2 deaths in this group of 18 patients. Neither of these deaths was considered to be the result of hypothermia. One was due to bronchopneumonia on the third postoperative day. The other was believed to be due to ventricular fibrillation. Follow-up evaluation was possible in 13 patients. Eleven of these showed weight gain, increased strength and vigor, and unlimited activity. One patient has residual symptoms from peroneal palsy and one, given a preoperative diagnosis of psychogenic musculoskeletal disorder without true cardiovascular symptoms, reports no postoperative improvement. Air embolism has not been a problem, because the left side of the heart was flooded with isotonic sodium chloride solution through the defect just prior to the tying of the last suture. The right auricle and ventricle are similarly flooded prior to the clamping off of the incision in the auricular wall. The coronary arteries are protected from air embolism by placement of the clamp that occludes the aorta and pulmonary artery low enough to occlude the coronary ostia. Ventricular fibrillation has been a problem, but not an insurmountable one.

Diagnosis and Surgical Treatment of Mitral Stenosis. F. G. Uglov. Khirurgiya 33:55-60 (No. 5) 1957 (In Russian) [Moscow].

In the surgical treatment of mitral stenosis the differentiation between stenosis and insufficiency plays an important part. Among the 100 patients with a clinical picture of mitral stenosis operated on, there were 9 exhibiting mitral insufficiency, the atrioventricular orifice admitting 1½ to 2 fingers. There was 1 fatality in this group of 9; the remaining 8 did well and were much improved. Analysis of the 100 patients studied clinically and operated on suggests the following factors as favoring the diagnosis of stenosis: pulmonary stasis, insignificant or no enlargement of the left ventricle, and absence of prominence of the aortic arch as compared with that of the pulmonary artery in the roentgenogram. Electrocardiographic data pointing to hypertrophy of the ventricles are of diagnostic importance. Data suggesting hypertrophy of the left ventricle speak for the predominance of insufficiency. Pronounced dyspnea on mild exertion and pain in the cardiac area in the absence of ascites or markedly enlarged liver speak for stenosis, while patients with aortic insufficiency have less dyspnea on exertion in the presence of liver enlargement and even of ascites. The above signs and symptoms have only relative value in the differential diagnosis between stenosis and insufficiency. Operative intervention is indicated in the doubtful cases as well. Diagnosis of mitral stenosis constitutes an absolute indication for surgical intervention, provided the patient is not in the stage of severe and irreversible decompensation. Among the 100 patients operated on there were 11 fatalities. Commissurotomy improves the general condition of the patients to a greater extent. The operation is equally effective in the presence of auricular flutter and moderate decompensation.

Coronary Endarterectomy: Curettement of Coronary Arteries in Dogs. A. M. May. Am. J. Surg. 93:969-673 (June) 1957 [New York].

Instrumental exploration of the coronary arterial tree, both through a transaortic approach and by an approach through the terminal portion of the coronary arteries, was successfully accomplished in 23 adult dogs of various size. Injuries to the intima of the coronary artery may be produced without causing death or disability of the animals. Previous to animal experimentation, curette procedures were carried out on 18 human cadavers; it was found feasible to remove the atheromatous tissue from the first portion of the coronary arteries. Techniques and approaches are described. The retrograde method was found the most practical and quickest, involving minimal mortality.

Experiences with Extracorporeal Circulation in Open Cardiac Surgery. G. H. Pratt. Am. J. Surg. 93:960-969 (June) 1957 [New York].

Lesions of the heart were treated surgically in 3 ways. Closed-heart surgery does not require direct vision of the inside of the heart. The open-heart technique with hypothermia imposes a strict time limit. The cardiopulmonary bypass with a pump oxygenator is the third method of heart surgery. The author emphasizes the difficulties and the time and effort one must expend to master the open-heart surgery technique. The technical points that have to be surmounted in performing successfully heart-lung work, requiring much experience, are detailed. A well-trained team, experienced in all types of major and thoracic surgery, with the cooperation of the departments of pathology and hematology, worked with a partial oxygenation pump and performed 2 and 3 operations a week for 5 months before a dog survived the surgery. Success had to be achieved on dogs before operation on human beings were attempted, since these animals are difficult to keep alive after open-heart surgery. Lesions of the heart, previously not corrected or only partly helped, such as ventricular septal defects, atrioventricularis communis, isolated infundibular pulmonary stenosis, and the tetralogy and pentology of Fallot, have been operated on successfully. No clinic should undertake open-heart surgery until routine success on experimental animals can be demonstrated.

The Surgical Treatment of Chronic Pancreatitis. R. F. Bowers. J. Kentucky M. A. 55:511-516 (June) 1957 [Louisville].

A plan of therapy for chronic pancreatitis is presented. Biliary surgery, choledochojejunostomy en Roux Y, and cystenterostomy or cystgastrostomy gave excellent results in selected patients when performed in the early stages of the disease. Control of the attacks of pancreatitis was achieved in half of the patients by biliary tract surgery alone. Choledochojejunostomy en Roux Y was performed when attacks recurred and no disease of the biliary tract could be demonstrated. Of 19 patients thus operated on, only 1 was designated as a failure; he developed a pseudocyst. No satisfactory procedure for control of the disease was found when the "burning out" or "burned out" stage of the disease was reached. A few patients might be helped by caudal pancreaticojejunostomy. The only relief in this stage was obtained by pancreaticoduodenectomy, but the disadvantage of this procedure is the formation of peptic ulcers, caused by the loss of the alkaline pancreatic secretions to the duodenum.

Rheumatoid Arthritis Presenting as Tenosynovitis. J. H. Jacobs, E. V. Hess and I. P. Beswick. J. Bone & Joint Surg. 39B:288-292 (May) 1957 [London].

Tenosynovitis with effusion has often been considered of tuberculous origin, but many cases have been reported in which conclusive evidence of tuberculosis was not found. While it is well known that tendons and tendon sheaths may be involved in the course of rheumatoid arthritis, it is not so widely recognized that early rheumatoid arthritis may present as isolated attacks of tenosynovitis. The authors present the histories of 3 women, aged 41, 42, and 68 years, respectively, in whom tenosynovitis of the hands and wrists was the primary manifestation of rheumatoid arthritis. Involvement of the joints first became apparent 18 months, 14 months, and 4 months after the preceding attacks of tenosynovitis. One of these patients had 2 attacks of tenosynovitis, one involving the right and other the left hand, before the development of arthritis. It is often impossible to distinguish, on clinical grounds, between tuberculous tenosynovitis and isolated rheumatoid tenosynovitis. The appearance of the tendons and sheaths at surgical exploration still leave the diagnosis in doubt, and it is not the tendon sheaths have been examined histologically that the true nature of the condition becomes apparent.

The biopsies taken from the 3 patients showed hyperemia and edema of the tendon sheaths, proliferation of synovial lining cells with exudation of fibrin upon synovial surfaces, and diffuse infiltration of the tissues with lymphocytes and plasma cells, together with the formation of circumscribed lymphoid nodules. While no single one of the changes seen in the tendon sheaths in these patients can be considered specific of rheumatoid arthritis, collectively they provide strong presumptive evidence of the diagnosis.

The Secretory and Clinical Aspects of Achlorhydria and Gastric Atrophy as Precursors of Gastric Cancer. C. R. Hitchcock, L. D. MacLean and W. A. Sullivan. J. Nat. Cancer Inst. 18:795-809 (June) 1957 [Washington, D. C.].

At the University of Minnesota Hospitals, screening for achlorhydria and hypochlorhydria has proved an effective means of diagnosing a reasonable number of gastric cancers in the asymptomatic phase of the disease. During a 10½-year period, over 12,000 men an women have undergone a screening test to detec those persons likely to develop gastric cancer. Th portion of the total population that must be examine periodically because of increased likelihood to develop gastric cancer has been reduced to 6½%. Th problem of population screening becomes economically feasible through this method, and adequate protection for the population at large appears to result fro this approach. No case of gastric cancer in the University of Minnesota Cancer Detection Research Center would have been undetected if all other screenin techniques except examination for achlorhydria an hypochlorhydria had been omitted. The etiologic relationship of achlorhydria and atrophic gastritis wit gastric cancer is strongly supported by these result In the achlorhydric-hypochlorhydric group the incidence of gastric cancer is 4.5 times greater and in th pernicious anemia group 21.9 times greater than i the same segment of the normal population. Thes studies indicate that in pernicious anemia patien gastrointestinal roentgenograms should be made 6-month intervals and in patients with achlorhydria hypochlorhydria at 9-to-12-month intervals. Addition studies of achlorhydric persons, by means of th Schilling test, indicate that about 5% have preclinic pernicious anemia. Further refinement of the grou that require repeated study may be possible throu the application of tests of this kind.

Resection in Pulmonary Tuberculosis. B. Gontijo. Re brasil. tuberc. 25:697-706 (May) 1957 (In Portugues [Rio de Janeiro].

The author considers resection a better treatme than su [illegible] l collapse therapy in the treatment [illegible] berculosis. His experience is based

105 patients, who were subjected to pulmonary resection between January, 1949, and May, 1954. Thirty-seven of these had a pneumonectomy, 60 a lobectomy, and 8 a segmental resection. There were 22 instances of postoperative complications. They were, in order of importance, bronchial fistula, dissemination of the process, focus reactivation, empyema without a fistula, and reopening of cavity. Eleven of the 105 patients died. Six deaths were related to the operation proper or took place within a month after the operation. The causes of death were surgical shock in 2, dissemination in 3, and embolism in 1. Five deaths occurred later, all due to a bronchial fistula. Deaths due to surgical shock deserve special mention. The author contends that this was probably due to maladministration of anesthesia, because later, when the technique of anesthesia was improved, no death occurred due to surgical shock. The author considers anesthesia as the most important factor of success in pulmonary resection. The clinical course upon discharge from the hospital was satisfactory. There are also economic and social advantages in pulmonary resection: shorter period of hospital confinement, quicker and better readjustment to normal life, and less physical deformity than after a thoracoplasty.

Thymic Cyst in the Neck: Case Report. A. S. Crawford, P. V. Evans and W. Thompson. J. Indiana M. A. 50:715-719 (June) 1957 [Indianapolis].

The authors present the history of a 6-year-old boy who had a swelling of 3 years' duration on the right side of the neck. It had existed without symptoms, and was noticed by the parents only when he laughed or cried. About 6 weeks prior to admission the mass began to enlarge, and it became painful on palpation. It had not interfered with eating or swallowing. The cystic mass was lateral to the thyroid; it appeared to be well demarcated from the adjacent structures and was freely movable; it was estimated to be 4 to 5 cm. in diameter and was moderately tender to palpation; it extended laterally to the anterior border of the right sternomastoid muscle. At operation the cyst was found to extend above the right sternomastoid muscle and above the superior thyroid vessels. It was removed by blunt and sharp dissection. The lower portion of the cyst extended into the superior mediastinum. When the cyst was accidentally ruptured during dissection it yielded a thick, brown-red fluid. At this time it was noted that the surrounding tissue had the appearance of thymic tissue. The histological examination revealed thymic tissue in all examined sections of the wall of the cyst.

The authors cite evidence indicating that thymic cysts occur in the neck more frequently than the literature suggests. The case presented proves the advisability of including a posteroanterior roentgenogram in the routine investigation of cystic lesions in the neck. The possibility of malignancy of thymic tissue should be a consideration in lesions of the type under discussion. Two cases of malignancy in aberrant thymus tissue were reviewed, 1 of which was observed in an 11-year-old child and the other in a 58-year-old adult. That in the child was located in the neck.

Giant Chondroma of Maxilla Making Necessary Hemifacial Removal of Tumor with Enucleation of the Eye. A. García Blanco and E. Planas García de Dios. Rev. espān. oto-neuro-oftal. 14:130-134 (March-April) 1957 (In Spanish) [Valencia, Spain].

Giant chondroma of the maxilla is extremely rare. A 34-year-old woman complained of respiratory difficulty, eye symptoms, and headache of 1 year's duration. An enormous exophthalmos of the left eye caused lacrimation, loss of vision, and pain over the eye and the supraorbital region. Roentgen therapy in two series of 14 and 36 sessions, respectively, did not bring relief. Roentgen examination of the head showed a tumor which occupied the entire left ethmoido-orbital region. Biopsy demonstrated a chondroma. An operation was performed with the patient under general anesthesia with intubation. The tumor included the entire left ethmoidal and orbital regions, the eye, the septum, and the right turbinate bones. The tumor was extirpated with an electric knife, and the eye was enucleated. The patient was given 300 cc. of blood during the operation. Antibiotics were given in the immediate postoperative period. Histopathological examination of the tumor confirmed the diagnosis of a chondroma. The postoperative period was uneventful. The patient was discharged 1 month after the operation. She was requested to report in 2 months for a plastic repair of the mutilated region.

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Prognosis in Hemiballismus. H. H. Hyland and D. M. Forman. Neurology 7:381-391 (June) 1957 [Minneapolis].

The occurrence of hemiballism is reported in 6 women and 8 men between the ages of 26 and 84 years. In one 26-year-old man the condition became manifest after a cerebral trauma caused by a severe blow on the left temporal region. Hemiballism developed in a 42-year-old man at the time of an exacerbation of multiple sclerosis of 17 years' duration. The hemiballism was considered to be a result of cerebrovascular disease in the remaining 12 patients, whose average age was 72 years. In great contrast to the generally accepted unfavorable prognosis, spontaneous recovery occurred in 12 patients. Four patients had hypertension and 2 had diabetes mellitus. In several patients there was evidence of myocardial disease and/or diffuse cerebrovascular disease. The rapidly executed extensive involuntary movements of the limbs of one-half of the body which characterized the clinical picture lessened in severity after 1 to 3 weeks and usually subsided completely during the next 4 to

9 weeks. There was only 1 patient in whom cessation of the hyperkinesis was rather abrupt, occurring 5 days after the onset. This patient had a number of cerebral softenings caused by cardiac emboli, including that which had destroyed the subthalamic nucleus. It was thought possible that another vascular lesion may have involved other pathways and in some manner offset the effect of the damage to the subthalamic nucleus, thus causing the hemiballism to stop.

Treatment consisted of good nursing care combined with the use of hypnotic drugs in most of the 12 patients in whom the hemiballism subsided spontaneously. The prompt relief of symptoms in 2 patients who were given chlorpromazine suggested that this drug had a specific effect in controlling the hemiballism, but it was ineffective in 1 other patient. One of the 2 patients in whom hemiballism failed to subside spontaneously died with the disorder, and the other would probably have died had cerebral pedunculotomy not been performed successfully. It is suggested that spontaneous recovery from hemiballism is more likely to take place if the lesion involves the afferent connections of the subthalamic nucleus and the latter escapes destruction. There was evidence in 4 patients that this had occurred. Autopsy revealed the lesion in this situation in 1 patient who died 2 months after recovery from hemiballism. There were 3 other patients with spontaneous recovery who had signs of thalamic involvement occurring simultaneously with the hemiballism. The occurrence of these manifestations together makes it seem probable that hemiballism was caused by damage to the afferent connections rather than the subthalamic nucleus itself. The results obtained in the patients suggest that many will recover with conservative measures alone. Neurosurgery should be necessary only in patients with a long unremitting course or in whom deterioration due to exhaustion renders it essential.

Some Neurological Aspects of Epilepsy: Analysis of 407 Cases of Epilepsy from the Clinical and Etiological Point of View. I. Alfandary. Harefuah 52:283-288 (June 2) 1957 (In Hebrew with English Summary) [Tel Aviv, Israel].

Of 407 patients with epilepsy who were studied in an attempt to determine its cause, it was not possible to do so in 138 patients (33.9%). However, 34 (25.3%) of the 138 patients showed other signs of involvement of the central nervous system or of delayed mental development; consequently an organic origin, most often obstetric trauma, seemed to be likely. Cryptogenetic or idiopathic epilepsy was suspected in only 33 (8.2%) of the patients. Several causative factors may often be present in the same patient, such as obstetric trauma or accidental trauma and heredity or migraine. It may be difficult to decide which of these causes could be the decisive factor.

Birth or accidental trauma were the 2 main causes identified in 122 patients (30%). Next in order were cerebromeningeal infection and tumor. Heredity is not a common cause, since it was identified in only 37 patients (9%). Cases with similar heredity were not always of central encephalic type. In 2 cases, the father had late epilepsy of cortical type and the child had early epilepsy either of cortical or of central encephalic type. These findings confirm the importance of a predisposing factor. Tonic and akinetic types of seizures occurred in children with serious brain damage, especially lesions of the brain stem. A satisfactory explanation of the "paralytic," inhibitory, or negative seizures is still lacking. These convulsive attacks are manifested by paralysis of one or several extremities, absence of feeling of a part of the body, hemianopsia or scotoma, arrested thinking, or a sensation of empty stomach. Inability to understand words or to utter them most probably belongs to the same group. Succession of a negative hallucination after a positive one of the same type is noteworthy. The anatomic and psychic types of auras were observed most frequently. The various forms of partial seizures are discussed with regard to, differences in the auras. Psychomotor epilepsy is not a homogeneous group with regard to clinical aspect and anatomic and electroencephalic findings. It might be classified with the focal forms of epilepsy, although its identification with temporal epilepsy does not seem to be entirely justified.

Protection Against Reserpine-Induced "Parkinsonism." H. A. Rashkis and E. R. Smarr. Am. J. Psychiat. 113:1116 (June) 1957 [Baltimore].

When 24 schizophrenic patients were given reserpine, either alone or in combination with other drugs, 9 developed the characteristic Parkinsonism-like syndrome. Twelve patients received reserpine alone, 12 patients trihexyphenidyl alone, and 24 patients reserpine in combination with trihexyphenidyl. It was found that giving trihexyphenidyl with reserpine afforded protection against the development of a Parkinsonism-like syndrome. In view of this finding it has become their practice, whenever prescribing reserpine in large doses, to initiate therapy with trihexyphenidyl immediately instead of waiting for a Parkinsonism-like syndrome to develop.

Congenital Syphilis as a Cause of Mental Deficiency. C. B. Courville. Bull. Los Angeles Neurol. Soc. 22:85-90 (June) 1957 [Los Angeles].

The history and autopsy report of a Negro girl who died at the age of 9 years as the result of tetanus is presented. She had sustained an abrasion of the left knee while playing in a freshly fertilized flower bed. The child had been mentally defective since birth and was spastic. The Wassermann test on blood from the umbilical cord had been strongly positive at birth, but no symptoms were noted until the child was 9 months of age, when strabismus became apparent. A retarded mental state was noted later. She had made fair progress in school for retarded children. Autopsy was performed, and death was considered to be due to tetanus. The brain was examined in a neurological laboratory. There was an atypical basilar artery and vascular anomaly of the left cerebellar hemisphere; widespread increased pial vasculature; perivascular lymphocytic accumulations; and diffuse and patchy loss of cortical nerve cells. Mental deficiency as well as cerebral palsy was the apparent result of congenital syphilis.

The presence of marked perivascular round cell accumulations in the cerebral cortex of a 9-year-old girl indicates a continued effect of the syphilis from the intrauterine period to the time of her death. This effect was exerted very likely through the medium of the circulation, as suggested by the predominant loss of nerve cells in the upper cortical layers, which ordinarily have an abundant blood supply. This is not difficult to understand, since syphilis is primarily a vascular disease. The absence of notable structural changes in the cortical arteries also suggests that this circulatory disturbance was probably functional in nature. In the past, congenital syphilis played a significant role in the production of mental deficiency. The incidence averaged approximately 6% in the period ending about 1935. In the past 20 years, it has dropped to about 4%. It is to be anticipated that in the future syphilis will play a decreasing role in the causation of mental deficiency, thanks to the efficiency of antibiotic therapy. The pathological changes found in the central nervous system in those who die in childhood or early adolescence are syphilitic meningitis, syphilitic vascular disease (including endarteritis), or congenital paresis. In those who die after the age of 16 years, chronic meningovascular syphilis is more likely to be present, the chronic meningeal or meningovascular form being less likely to bring about a fatal issue.

Arterial Hypertension in Poliomyelitis. E. Kemp. Acta med. scandinav. 157:109-118 (No. 2) 1957 (In English) [Stockholm].

This report is based on experience gained in Blegdamshospitalet in Copenhagen during an epidemic of poliomyelitis in Denmark in 1952. Frequent blood pressure measurements proved valuable in discovering imminent or existing hypercapnia or hypoxia. Some patients had acute kidney lesions, which probably caused hypertension. In other patients, however, who apparently were well-ventilated and without kidney lesions, hypertension developed and occasionally persisted in spite of marked clinical symptoms of shock. An attempt was made to elucidate whether the hypertension in these patients was due to lesions in the central nervous system. The blood pressure was measured in 337 patients with poliomyelitis; this number included some from an earlier epidemic. The development of hypertension during poliomyelitis was influenced by neither the age nor the sex of the patient; it occurred with equal frequency in children and adults and in males and females. Hypertension persisting for days was observed during the acute stage of poliomyelitis in 55% of the patients who died; in 30% of those with bulbar, 45% of those with the bulbospinal, and in 40% of those with severe spinal forms of poliomyelitis. Neither artificial ventilation nor hypoventilation or hyperventilation seemed necessary or sufficient causes for the development of hypertension persisting for days in poliomyelitis patients treated with present-day methods. Azotemia, or changes in the spinal medulla, in the diencephalon, or the telencephalon likewise did not seem to play a part. Observations in the course of the present study suggested, however, that ganglionic cell degeneration in the nucleus magnocellularis in the medulla oblongata is a necessary condition for the development of hypertension.

Changes in the Nervous System in Acute Porphyria. R. Hierons. Brain 80:176-192 (June) 1957 [London].

The author describes studies on the nervous system of 5 patients with acute porphyria and discusses the findings in relation to the clinical features of the disease. Abnormalities were present in the anterior horn cells of the spinal cord in all of these patients. Chromatolysis was clearly secondary to axonal damage. It seems extremely unlikely that axonal damage can explain the vacuolation of the cytoplasm in some of the neurons and also the presence of shrunken cells. It is suggested that vacuolation is a stage in cell loss. Material from the peripheral nerves was available in 3 of the patients. The peripheral nerve lesions probably result from a metabolic disturbance and not from a vascular spasm. The neuronal changes in the anterior horn cells are probably also of metabolic origin. Extensive vascular lesions were observed in the brain, but these were probably secondary to severe hypertension or respiratory paralysis and were not the cause of the severe mental disturbance. The mental disturbances are probably due to a direct, possibly reversible, metabolic effect of the disease; and this may result in some loss of neurons in the brain and cerebellum similar to that in the spinal cord.

Brain-Stem Encephalitis. E. R. Bickerstaff. Brit. M. J. 1:1384-1387 (June 15) 1957 [London].

A syndrome of brain-stem encephalitis not previously described in the literature, involving a prodromal period of general malaise and mild pyrexia, gradual signs of midbrain disturbances, and no cardiac and respiratory embarrassment, is reported in connection with the observation of 4 additional cases. No significant connotation is accorded age, sex, and geography in the classification and description of early signs and symptoms. The period of onset was gradual, lasting from 1 to 3 weeks and featuring general malaise, drowsiness, headache, and some muscular aching. Early symptomatology included mild headache, marked drowsiness, double vision, vomiting, ptosis, defective conjugate eye movements, dysarthria, unsteadiness of gait, and low-grade pyrexia. Progress from onset to maximal disability ranged from 1 to 8 weeks, while further progress to total recovery varied from 1 to 17 months. At the point of maximal disability there was partial to complete ophthalmoplegia, bilateral paralysis of the motor branch of the trigeminal nerve, total bilateral facial paralysis, deafness, gross paralysis of the 9th, 10th, 11th, and 12th cranial nerves, complete anarthria, and loss of tendon reflexes except plantar extensor response. During the stage of return of neurological function some of the patients developed an extrapyramidal type of rigidity and others a Parkinsonian tremor or emotional lability. These more recent developments disappeared shortly after they appeared. It is significant that neurological recovery has been complete in all the cases observed save 1, with the exception that intellectual deficit occurred in one patient to the extent that it interfered with his education. The outstanding feature of these cases is the dramatic total recovery after subacute development of disturbed brain-stem function so gross that at one stage survival even for a few days seemed impossible.

Rehabilitation of 250 Patients with Chronic Sequels of Acute Poliomyelitis by Intra-arterial Growth Hormone Treatment. E. Henriquez, A. Bueno García, J. Pérez Alama and others. Rev. med. hosp. gen. 20:321-329 (May) 1957 (In Spanish) [Mexico, D. F., Mexico].

The authors have previously reported satisfactory results from the administration of intra-arterial injections of growth hormone in treatment of chronic sequels of acute poliomyelitis (abstracted in THE JOURNAL [162:1665-1666 (Dec. 29) 1956]). Results in 250 patients who had a follow-up of more than 1 year are reported in this article. The patients were of both sexes and were between the ages of 1 and 27 years. Sequels had lasted between 6 months and 25 years prior to the treatment. The drug was given in doses of from 1 to 3 cc. in 1.5 cc. of saline solution for each injection. The injections were made into the femoral artery for sequels in the legs or into the subclavian artery for sequels in the arms. They were given once a week to a total of 3 to 8 injections for each limb treated. The following results were observed: The treated limb increased in size at an average monthly rate of 0.5 to 1 cm. in 145 cases. It did not change in 5 patients. The muscles increased in thickness at an average monthly rate of 0.5 to 1.5 cm. Muscular movement, muscular tonicity, local temperature of the skin, and the patellar, plantar, and achilles reflexes appeared or increased in almost all of the cases. Complete recuperation (100%) was obtained from complete functional incapacity (100%) in 39 cases, from moderate incapacity (50%) in 58 patients and from marked incapacity (75%) in 107 patients. Marked functional capacity (75%) from marked functional incapacity (75%) was obtained in 46 patients. In the course of the treatment transient hyperglycemia was observed in 2 cases, lowering of the erythrocyte count in 2 cases, and an acute headache in 2 cases. These disturbances were controlled by diminishing the dose of the growth hormone. Roentgen examination of the bones showed increase of thickness and of the length of the bone and improvement of osteoporosis. The muscular reactions to faradic and galvanic currents and the chronaxia of the muscles increased. The improvement obtained had not changed 1 year after completion of the treatment. Regression of the sequels did not occur. The authors conclude that the intra-arterial injections of growth hormone secures cure or great improvement of the chronic sequels of poliomyelitis.

Early Symptoms of Multiple Sclerosis: A Survey of Eighty-Two Cases. C. H. Imes. Bull. Los Angeles Neurol. Soc. 22:91-94 (June) 1957 [Los Angeles].

This study was undertaken to discover what the early symptoms of multiple sclerosis had been in patients seen in a Los Angeles Hospital during the years between 1933 and 1951, in order to determine whether a benign climate like that of southern California would alter the course of this disease, especially during its early phase. The fact that some of these patients had moved to southern California after the onset of the disease modifies the figures somewhat. The records of 82 patients in whom the diagnosis was reasonably assured were studied. Sixty-five per cent of the patients had only 1 symptom at the onset, whereas the other 35% had 2 or more symptoms. A survey showed that 29% had visual symptoms and 33% had symptoms of the motor system, 29% had sensory symptoms and 33% had symptoms affecting coordination. Speech was affected early in 2 patients; the sphincters in 8 patients; and 1 patient had progressive fatigue. Other reports had revealed a similar incidence of early symptoms. The time interval between first onset and the consultation on which this survey is based indicated a more benign course extended over a longer period of years for patients in this mild climate than in those living in more severe climates.

GYNECOLOGY & OBSTETRICS

Identification of and Therapy for Vaginal Candidiasis. H. L. Pickhardt and J. L. Breen. Am. J. Obst. & Gynec. 74:42-46 (July) 1957 [St. Louis].

In 23 obstetric patients and in 50 gynecologic patients with symptoms of a vaginal infestation, such as malodorous vaginal discharge, itching, burning, and general discomfort, particularly on walking, a specimen was removed from the posterior fornix or lesions along the vaginal wall with a sterile, cotton-tipped applicator and cultures were made on Nickerson's medium. Cultures positive for Candida were obtained from the specimens of 19 of the 23 obstetric patients and of 35 of the 50 gynecologic patients. The clinical impression of vaginal candidiasis was thus confirmed in 82.6% of the obstetric patients and in 70% of the gynecologic patients. Clinical diagnosis of candidiasis based on symptomatology and physical findings is not perfect, and cultures should be used to support the impression.

Nineteen obstetric and 35 gynecologic patients with cultures positive for Candida were treated for 2 weeks by inserting one applicatorful of a new gentian violet cream intravaginally at bedtime. Six obstetric patients and 2 gynecologic patients were lost to follow-up. Of the remaining 13 obstetric patients, 10 had 1 course of treatment and 3 had 2. Of the 32 gynecologic patients, 22 had 1 course of treatment, 6 had 2, 4 had 3, 1 had 4, and 1 had more than 4. An almost complete culture cure was obtained with a maximum of 2 courses of therapy in the obstetric patients. Similarly, the over-all culture cure in the gynecologic patients was practically ideal, but repeated courses of therapy were required in 11 patients, and 1 patient remained culture-positive after 5 courses of therapy. The gentian violet cream thus has been shown to be an ideal medical therapeutic agent for patients with proved candidiasis. Associated vaginal infections with Trichomonas vaginalis persisting after the eradication of Candida were found in 3 obstetric and 7 gynecologic patients.

Prophylaxis and Therapy of Postoperative Thromboembolism. H. Wimhöfer. Medizinische No. 24, pp. 900-903 (June 15) 1957 (In German) [Stuttgart, Germany].

According to Wimhöfer there are 3 methods of prophylaxis of thromboembolism in women undergoing laparotomy. First, the surgeon should watch for the type of patient with a tendency to thrombosis, characterized by constitutional peculiarities, age, poor circulation, and varicose veins. Certain primary disease and certain operations favor the occurrence of thromboembolism. Second, one should watch for prodromal symptoms, such as pain in the calf occurring either spontaneously or being elicited by pressure, pain associated with dorsiflexion of the foot (Homan's sign), and pressure pain in the sole of the foot (Payr's sign). Unexplained acceleration of the pulse and rise in temperature and the absence of postoperative normalization may also be included in this symptomatology. Of 1,506 women who underwent laparotomy at the gynecologic clinic of the University of Heidelberg, Germany, 225 were suspected to be threatened by thromboembolism depending on the criteria listed above. Of the 225 patients, 7.1% had thromboembolism and 4.9% had infarctions. Of the 1,281 patients, 1.5% had thromboses and 0.62% had infarctions. The data show that these 2 methods of selecting patients for prophylactic treatment of thromboembolism are not entirely satisfactory.

The third method of selecting patients for prophylactic treatment of thromboembolism consists of the application of the more recent knowledge of the physiology and pathology of the coagulation of the blood. Hartert's recalcification test performed with the aid of the thromboelastograph provides a more satisfactory result than the Quick test. Of 2,176 women who were subjected to this test, 1,048 did not show signs of a disturbance of coagulation; thrombosis occurred in 1, mild infarction in 2, and fatal embolism in 1 of these, 768 patients had a shortened coagulation time and were given prophylactic treatment; of these, 2 had mild thrombosis, 17 had mild infarction, and 2 had severe infarction. There was no fatal embolism. Early recognition and early institution of treatment prevented the development of thrombosis and the development of large and fatal embolism. Of 45,348 obstetric and gynecologic patients operated on between 1933 and 1950, thromboembolism occurred in 1.21% and fatal embolism in 0.17%. Of 13,288 women operated on between 1951 and 1954, the period during which properly directed prophylaxis was practiced by making use of all 3 methods of selection of patients for anticoagulant therapy, 1,388 were treated with 3-(1-phenylpropyl)-4-hydroxycoumarin (Marcoumar). The rate of thromboembolism among these patients was reduced to 0.32%. Fatal embolism occurred only in patients who had not received prophylactic treatment, and its incidence was 0.023%.

PEDIATRICS

A Case of Phenylketonuria with Borderline Intelligence. D. Y-Y. Hsia, W. E. Knox and R. S. Paine. A. M. A. J. Dis. Child. 94:33-39 (July) 1957 [Chicago].

Phenylketonuria is a congenital inborn error of metabolism associated with mental deficiency in which loss of enzyme activity predisposes to an inability to convert (oxidize) phenylalanine to tyrosine.

This condition is clinically manifested by large amounts of phenylpyruvic acid in the urine and high fasting plasma phenylalanine levels. An otherwise typical case of phenylketonuria in a child with near normal intelligence has been carefully documented. The existence of such cases has been reported (phenylketonuria with near normal intelligence), but none have been established. The patient was one of 2 sisters with similar biochemical disturbances, one of whom is severely retarded (IQ 4) and the other only mildly affected (IQ 78) and able to move about in society. Phenyllactic acid, o-hydroxyphenylacetic acid, indoleacetic acid, and phenylacetylglutamine were present in the urine in amounts usually found in phenylketonuria. Normal heterozygote carriers had plasma phenylalanine levels twice those of normal persons (0.21-0.50) after an oral dose of L-phenylalanine, while the phenylalanine level of the phenylketonurics was zero. From these data the parents and the brother were found to be heterozygous and the patient and her sister homozygous. Thus, this typical homozygous form of phenylketonuria may be associated with borderline intelligence. The existence of such cases showing unusual mental development points to the possible future discovery of new avenues of therapy in addition to the prevention of high plasma phenylalanine levels by the use of low-phenylalanine diets.

Gastroschisis: Report of a Case. W. B. Kiesewetter. A. M. A. Arch. Surg. 75:28-30 (July) 1957 [Chicago].

Gastroschisis is a congenital deformity, peculiar to lower animals as well as humans, in which the abdomen remains open. A possible explanation of this condition is that there is an abnormality of the somites forming the anterior abdominal wall which permits faulty development of a portion of the wall, resulting in a herniation through this defect. The umbilical cord development is normal, as the defect is extraumbilical, but not infrequently there is a complete absence of a peritoneal sac, resulting in marked enlargement and thickening of the intestines. This is the 10th case reported; in 2 cases there were successful surgical corrections. Excision of a black, gangrenous intestine protruding from an aperture to the right of the umbilicus and removal of the narrow orifice through the anterior abdominal wall was followed by a jejunotransversecolostomy. The immediate postoperative course was excellent, considering the minimal intestinal surface area available for absorption. The terminal series of events was characterized by an increasing number of stools with a concomitant weight loss. This case is unique in that a live-born child with this deformity presented strangulation of the intestine due to narrowing of the abdominal wall defect, something that other reported cases did not present.

Results of BCG Vaccination of the Newborn: Observations on the Exposure to and Development of Tuberculosis in 76 Children Vaccinated with BCG at Birth. P. Dannenbaum and A. Bingel. Deutsche med. Wchnschr. 82:919-921 (June 7) 1957 (In German) [Stuttgart, Germany].

At the immunization center of the Municipal Children's Clinic of the city of Braunschweig about 95% of the newborn infants are being immunized against tuberculosis with BCG vaccine; 19,000 newborn infants were subjected to this vaccination in the years between 1949 and 1955. Provided a correct technique is employed, the newborn infants tolerate the BCG vaccine exceptionally well; in only 2 or 3% was there a discharge from the site of vaccination, and ulcers of more than 5 mm. in diameter were rare. Abscess formation of the inguinal lymph nodes was practically never observed. Intracutaneous tuberculin tests (1:100) showed that 95% of the infants achieved tuberculin allergy within 12 weeks. The authors gave special attention to the infants who were exposed to tuberculosis in their environment. When investigation revealed that a person with tuberculosis lived in the same house or camp with the infant but did not belong to the family or that a person within the infant's family had a noncontagious form of tuberculosis, the infant remained at home, but the parents were given strict instructions that, until the tuberculin test had demonstrated that the child had become immune, the child must be protected against exposure; this is relatively easy at this early age. These infants were given special supervision by the immunization center (repeated roentgenologic controls). Tuberculosis did not develop in any of the 248 vaccinated infants.

If a source of infection was known within the family group, the newborn infant was vaccinated with BCG and kept in a children's home until the vaccination had taken effect (proved by a test), after which the child was returned to the parents. Infants whose mothers had open tuberculosis were treated in the same way, provided the infant could be immediately separated from its mother. When this proved impossible, and no matter how short the exposure, the infant was isolated at the clinic for from 6 to 8 weeks, and, if the tuberculin test (1:100) then proved negative, BCG vaccination was carried out; this was followed by another period of isolation until allergy to tuberculin could be demonstrated, and after that the child was returned to its home. The authors studied 76 children who after BCG vaccination during the newborn period grew up in families in which they were exposed to tuberculous infection. The period of observation ranged from 1 to 5 years. Tuberculosis did not develop in any of these children. During this same period 118 children of the same age group were referred to the center for tuberculous children, the diagnosis of tuberculosis being established by tests and roentgenologic examinations. None of these 118 children had received BCG vaccine. The social and economic status was about the same in the vaccinated and in the nonvaccinated children. During the same 6-year period the authors received reports of 20 children in whom tuberculosis seemed to have developed despite BCG vaccination during the newborn period. In 14 of these children the presence of tuberculosis could not be established, and further studies disclosed such disorders as atypical pneumonia, changes in the hilus region, enlargement of the thymus, and pneumonic lesions resulting from whooping cough. The active tuberculosis in the other 6 children could not be ascribed to failure of BCG vaccination because the infant had been continuously exposed to open tuberculosis since birth and had become infected during the preallergic phase.

Wilms' Tumor: Three Cases. C. P. Teixeira. Rev. brasil cir. 33:369-378 (April) 1957 (In Portuguese) [*Rio* de Janeiro].

The author reports three cases of Wilms' tumor in children 2½, 1½, and 1 year old. Two were boys and one a girl. The tumor appeared 8, 6, and 3 months, respectively, prior to the consultation. It was located in the right kidney in all 3. The diagnosis was made on the clinical symptoms and the results of pyelography. It was observed during the operation that the tumor grew toward the abdomen and displaced the liver and intra-abdominal structures to the left. The removed tumors from the boys weighed 4 and 2 kg., respectively, and the one from the girl 800 Gm. Histological examination confirmed the diagnosis of embryonal carcinosarcoma. The first and third patients died a few hours after the operation. The second patient survived the operation and was given roentgen therapy, up to a total of 1,490 r. He was discharged as clinically cured 3 months later. Four months after the operation, however, he was blind from metastases in the chiasm. The fundi of the eyes were normal. The condition of the patient deteriorated rapidly, and he died 8 months after the operation.

The "Passing-Out" of Infants and Young Children: Cause and Treatment. P. Janson. München. med. Wchnschr. 99:779 (May 24) 1957 (In German) [Munich, Germany].

In infants and even more often in children between 1 and 6 years of age an emotional outburst accompanied by angry crying may result in arrest of breathing during the expiratory phase, followed by rolling of the eyes, thrashing about, cyanosis, and even loss of consciousness so that life seems threatened. The parents may become frightened and call the doctor, but after a few moments of "staying away" and after a deep inspiration the child regains consciousness. This "passing-out," "staying away," or rage fit is an emotional respiratory convulsion, usually in neuropathic children, and should not be overestimated. It should be controlled by pedagogic measures. It is a mistake to yield to the whims of these children for fear of eliciting a fit. When one develops, an energetic rather than a frightening attitude is necessary. A slap or a dash of cold water will not only abort an attack but will also reduce or prevent future ones. A change in environment or antineuropathic methods may be necessary if parents cannot apply such measures. Calcium and sedatives may prove effective, and in severe cases the author has obtained results with an injection of distilled water

OPHTHALMOLOGY

Retinopathy of Prematurity (Retrolental Fibroplasia) in Children in Whom the Disease has not Progressed to Complete Blindness, and the Subsequent Investigation of Cases of Myopia. I. D. R. Gregory. Brit. J. Ophth. 41:321-337 (June) 1957 [London].

A follow-up of 30 children with incomplete retrolental membranes was carried out. The children were known to have had retrolental fibroplasia in infancy, but some degree of vision could be expected. The clinical picture of these children was typical and included a myopic error of refraction in 26 children. The myopia varied from -2.5 to -18 D. Commonly the eyes were equally affected by retinopathy. Nystagmus was present in half of the patients, in 5 associated with eccentric fixation. Microphthalmic eyes were found in 14 children; these usually possessed little vision and frequently showed a convergent squint. Strabismus was present in 17 patients, secondary to the eye disease, which had led to gross visual impairment of the squinting eye. Opacities in the ocular media were frequently encountered. Three children with grossly damaged eyes showed corneal opacities, and one presented lenticular opacities; in two-thirds of the children vitreous opacities were evident. Malformations of the optic nerve-head were noted in 14 patients. Thinning, atrophy, and depigmentation of the retina were commonly encountered. Retinal detachment was evident in 14 patients and retinal folds were apparent in 6.

The noxious effect of the rubella virus on the developing eye occurs in the first 3 months of pregnancy, and the effect of prematurity on the eye takes place in the neonatal period. There appears to be a fundamental resemblance between the 2 in their effects on ocular development. The finding that retinopathy of prematurity is associated with myopia and that it has been possible to correlate myopia with prematurity suggests that prematurity is one of the factors which cause myopia. The new finding provokes further inquiry as to the nature

BOOK REVIEWS

Clinical Toxicology: The Clinical Diagnosis and Treatment of Poisoning. By S. Locket, M.B., B.S., M.R.C.P., Senior Physician, Oldchurch Hospital, Romford, Essex. With special sections on The Identification and Estimation of Some Common Toxic Substances, by W. S. M. Grieve, M.Sc., Ph.D., F.R.I.C., Biochemist, Oldchurch Hospital, and The Identification and Botanical Characteristics of Some of the More Frequently Encountered Poisonous Plants, by S. G. Harrison, B.Sc., Senior Scientific Officer, Royal Botanic Gardens, Kew, England. Cloth. $20. Pp. 772, with 27 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

Although the hospital unit of which the author is in charge is primarily concerned with barbiturate poisoning, it has a growing reputation as a toxicologic center. For this reason, it draws cases of many types of poisoning from a wide area. Because the hospital is situated in a highly industrialized district, the physicians also see and treat many patients with industrial poisoning. This is one of the few books on clinical toxicology written by a physician in active clinical practice in the field of toxicology. The author emphasizes the fact that there is not a specific remedy or line of treatment for each type of poisoning, and only in a few cases does treatment involve intricate or unusual procedures not encountered in general practice. The basic treatment of poisoning is symptomatic and supportive. This book is designed to help the physician in the diagnosis and treatment of poisoning.

Part 1 relates treatment to the systems which may be involved, disorders that may occur, and the toxic agents responsible; part 2 describes the symptoms and treatment for individual toxic agents; and part 3 contains special sections on the identification and estimation of common toxic substances and the identification of poisonous plants contributed by experts in these fields. Parts 1 and 2 give the author's personal experience in the treatment of poisoning and the rationale of treatment. The material is illustrated with well-documented case histories, and an extensive bibliography is provided at the end of each chapter. Unfortunately, the classification of toxic agents is often confusing, as material concerning one agent or class of agents may be found in several sections of the book, thus entailing a great deal of cross reference. However, in cases of emergency, one can refer to the index of treatment. In addition there are three other indexes—author, plant names, and subject. This book is recommended as a basic reference in clinical toxicology.

International Congress of Gastroenterology. Fifth Meeting of l'Association des sociétés européennes et méditerranéennes de gastro-entérologie, London, July 18-21, 1956. Reprint from Gastroenterologia, vol. 86, nos. 3, 4 and 5 (1956). [In English and French.] Cloth. Pp. 766, with illustrations. S. Karger AG., Arnold Böcklinstrasse 25, Basel, Switzerland; (American agent—Mr. Albert J. Phiebig, P. O. B. 352, White Plains, N. Y.), 1957.

This book offers an unusual collection of papers on many important aspects of gastroenterology. The authors, in the main, are distinguished specialists from various countries. Part 1 is made up of contributions on nonmalignant conditions of the esophagus and deals with normal and abnormal motility of the esophagus, organic disorders, radiologic findings, clinical aspects of incompetence of the cardia, and premalignant conditions of the alimentary tract. Part 2 covers gastric physiology, hepatic coma, liver and biliary tract diseases, the cause and treatment of peptic ulcer, carcinoidosis, and celiac disease. There are papers dealing with precancerous conditions and their diagnosis, the relationship between peptic ulcer and hypoglycemia, and metabolic studies after extensive gastrointestinal resections. Part 3 is devoted entirely to ulcerative colitis.

While it can hardly be said that the essayists of the Congress presented any profound contributions to the subject of gastroenterology, the Congress served to bring together distinguished specialists from all over the world. The investigation and correlation of enviromental influences, which must be legion, in the study of diseases has barely begun. In gastroenterology, particularly, neglect in these areas has been responsible for a dearth of any substantial progress for some years in our knowledge of alimentary tract disease. This book provides an acceptable addition to the literature in this field. It is unfortunate, however, that the articles in the various foreign languages could not have been translated for the English-speaking members of the profession.

Gynecologic Surgery and Urology. By Thomas L. Ball, M.D., Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical College, New York. With foreword by R. Gordon Douglas, M.D., Professor of Obstetrics and Gynecology, Cornell University Medical College. Cloth. $20. Pp. 547, with 161 illustrations by Daisy Stilwell. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

This volume embodies the essential teaching of the gynecologic staff of the New York Hospital–Cornell Medical Center. It is unique in its presentation of regional surgery as an advance from the

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

of the myopia and the mechanism of its production. More use of the term "retinopathy of prematurity" should be made, in view of the wide variety of clinical findings covered by this title.

THERAPEUTICS

Value of Troformone in Radiodermatitis. J. Lelièvre and A. Maschas. Presse méd. 65:1034-1035 (June 1) 1957 (In French) [Paris].

The authors have operated on 84 patients with radiodermatitis during the last 6 years, in all but 1 of whom the skin lesions followed x-ray treatment for corns, calluses, and plantar verrucae. Satisfactory information about the irradiation technique could not be obtained in many cases. Those in which it was available fell into 3 classes: (1) cases in which the x-ray dose was excessive or the filtration inadequate; (2) cases in which the technique was faultless but the patient, fearing operation, had falsely denied having previously had x-ray treatment; and (3) some 20 cases in which neither the technique nor the patient was at fault. Two more or less related causes may explain the occurrence of postradiation skin lesions in the third group: (1) the exceptional sensitivity to irradiation of the skin of the foot, which is poorly vascularized, and (2) the fact that the irradiated area is constantly subjected to irritation from the footwear and, when it is on the plantar surface, by the weight of the body. Corns, calluses, and plantar verrucae, in fact, usually appear at pressure points, and since, on the whole, x-ray treatment produces vascular sclerosis, it is easy to see that even a slight circulatory disturbance may precipitate the appearance of lesions. These same conditions of skin sensitivity and exposure to constant irritation also explain the difficulties encountered in treating radiodermatitis of the feet, especially when the lesions are extensive. The therapeutic dilemma lies in the fact that failure to excise all the injured tissue will be followed by recurrence, while wide excision will create difficult replacement problems. The skin is not elastic enough to permit approximation of the edges of the wound; a rotation flap may fail because of poor vascularization; and the cross leg flap procedure is open to objection, not only because it takes time and is painful but also because the skin used retains its original characteristics and never acquires the pressure-resistant capacity of genuine plantar skin.

The authors found that the problem presented in cases of this kind is greatly simplified by simple excision of the necrotic tissues followed by local applications of troformone (the trophic hormone of the pancreas). The effect of this treatment in 4 patients with extensive, exceptionally severe radiodermatitis was dramatic, amounting in each case to a restitutio ad integrum and enabling the patient to resume his normal activity within a short time. One of the patients, the only one who had been given radiotherapy for a condition other than corns, calluses, or plantar verrucae, had an area of fetid ulceration measuring 25 by 15 cm. at the site of an enormous fibrosarcoma on the right thigh. The tumor had been completely eradicated by large doses of x-rays, but some time after the treatment ulceration had begun in the irradiated area. The patient consulted several surgeons, but all of them believed that any attempt at operation would be certain to fail. He was then referred to the authors, and in May, 1954, they excised the necrotic tissue. Six weeks later, a clean surface was obtained by curettage and 10 days later treatment with troformone was started. A third and final operation was made necessary a week later because the necrosis had extended to an adjoining indurated area, but after this last operation recovery proceeded steadily, and by the end of September the defect was completely filled with sound tissue, pain had ceased, and the patient was leading a normal life.

Experience thus shows that when troformone therapy is associated with excision of sclerotic areas, which is essential to the success of the treatment, a complete cure can be expected in patients with radiodermatitis. The treatment is simple and painless; the reconstituted skin is practically normal and infinitely more resistant than a plantar graft; and, even if the reconstitution should prove inadequate in a given case, the restoration of the underlying tissues would make it easy to apply a free graft.

PATHOLOGY

Diffuse Scirrhous Carcinoma. E. Fischermann. Danish med. bull. 4:93-96 (May) 1957 (In English) [Copenhagen].

Diffuse scirrhous carcinoma is a form of cancer so far observed only in women. The term refers to its infiltrative growth. The primary tumor appears to originate in the breast, but the tumors have also been found in the bladder without a primary tumor in the breast. Although the tumor is small and progresses slowly, there may be extensive metastases in all smooth musculature. Two cases of diffuse scirrhous carcinoma in women aged 48 and 73, respectively, are reported. Medical aid was sought in each case for dyspeptic disorder, which was due to metastases in the smooth muscles of the gastrointestinal tract. The infiltration in the mammary tissue was limited, and a well-defined tumor was palpable. Diffuse scirrhous carcinoma is not a prestage of colloid cancer. In spite of its slow growth, the tumor is not only highly malignant but also insidious, as it does not give rise to symptoms until the metastases have become widespread.

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This book offers an unusual collection of papers on many important aspects of gastroenterology. The authors, in the main, are distinguished specialists from various countries. Part 1 is made up of contributions on nonmalignant conditions of the esophagus and deals with normal and abnormal motility of the esophagus, organic disorders, radiologic findings, clinical aspects of incompetence of the cardia, and premalignant conditions of the alimentary tract. Part 2 covers gastric physiology, hepatic coma, liver and biliary tract diseases, the cause and treatment of peptic ulcer, carcinoidosis, and celiac disease. There are papers dealing with precancerous conditions and their diagnosis, the relationship between peptic ulcer and hypoglycemia, and metabolic studies after extensive gastrointestinal resections. Part 3 is devoted entirely to ulcerative colitis.

While it can hardly be said that the essayists of the Congress presented any profound contributions to the subject of gastroenterology, the Congress served to bring together distinguished specialists from all over the world. The investigation and correlation of enviromental influences, which must be legion, in the study of diseases has barely begun. In gastroenterology, particularly, neglect in these areas has been responsible for a dearth of any substantial progress for some years in our knowledge of alimentary tract disease. This book provides an acceptable addition to the literature in this field. It is unfortunate, however, that the articles in the various foreign languages could not have been translated for the English-speaking members of the profession.

Gynecologic Surgery and Urology. By Thomas L. Ball, M.D., Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical College, New York. With foreword by R. Gordon Douglas, M.D., Professor of Obstetrics and Gynecology, Cornell University Medical College. Cloth. $20. Pp. 547, with 161 illustrations by Daisy Stilwell. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

This volume embodies the essential teaching
the gynecologic staff of the New Yor
Cornell Medical Center. It is unique
tation of regional surgery as an adv

These book reviews have been prepared by competent authorities and do not represent the opinions of any medical or other organization unless specifically so stated long-accepted organ specialty. That such does truly constitute an advance will be attested by all lighthearted gynecologists who have encountered unexpected and formidable complications in their work. The gynecologist of the future must be competent in the handling of urologic and intestinal complications and sequelae. His training must equip him accordingly, and such is the purpose of this book. It is unfortunate that so many gynecologists have had no training in urology, cannot use a cystoscope or urethroscope, have never inserted a ureteral catheter, and are equally incompetent in intestinal surgery. To many long in practice, this volume will come too late, but they can learn much from it and can institute among their trainees programs to insure future competence. Certainly, resident training should be extended to include this broader concept of gynecology.

Descriptions of operative procedures conform to the best standards and are preceded, step by step, with excellent reviews of the anatomy and physiology of the regions involved. The psychic and psychosomatic aspects of treating the female patient from early childhood to old age are well handled. Technically, there can be no criticism of the work. The large size pages with double columns add immeasurably to the readability of the book. The illustrations are well selected and arranged. The Author and his colleagues are to be congratulated in producing this excellent volume, one that should be available to all gynecologists and trainees in the specialty.

Ultramicro Methods for Clinical Laboratories. By Edwin M. Knights, Jr., M.D., Associate Pathologist, Director of Clinical Pathology and Blood Bank, Roderick P. MacDonald, Ph.D., Director of Clinical Chemistry and Research Advisor, and Jaan *Ploompuu, Chief, Division of Ultramicro Chemistry and Research Associate*, all of Harper Hospital, Detroit. Cloth. $4.75. Pp. 128, with 19 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W. C. 1, England, 1957.

The increase in the use of chemical tests for the diagnosis of disease has led to a number of problems. One important problem has been the difficulty in obtaining sufficient samples of blood or certain other body fluids for testing. This is especially true in the case of multiple testing in infants or children or in cases where venipuncture is impractical, such as in patients who are extremely obese or who are suffering from third-degree burns. The development of ultramicrotechniques for many blood tests has been a convenient method for surmounting this problem, since individual tests can be run on a few tenths of a milliliter of blood. These tests require special equipment, care, and techniques, and this book groups together the requirements for performing 18 or 20 clinical tests on an ultramicro scale. Discussions of the following determinations, tests, and procedures are included: potassium, sodium, calcium, chloride, inorganic phosphate, acid and alkaline phosphate. urea nitrogen, glucose, cholesterol, bilirubin, protein, and C-reactive levels; icterus index; carbon dioxide-combining power; thymol turbidity; cephalin flocculation; microflocculation tests for syphilis; microhematocrit readings; and electrochromatography. The chapters are organized to contain the principle of each test, a list of the apparatus and reagents needed, the procedure for performing the test, the normal values, and a short discussion of the meaning of each test. The first few chapters of the book are of a general nature, discussing such topics as the setting up of an ultramicrochemical laboratory, special equipment needed for performing the various tests, and the collecting and pipetting of blood. The volume contains a general index.

Outline of Fractures Including Joint Injuries. By John Crawford Adams, M.D., F.R.C.S., Consultant Orthopaedic Surgeon, St. Mary's Hospital, London. Cloth. $6.50. Pp. 248, with 218 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Place, Edinburgh 1, Scotland; 48 Bloomsbury St., London, W. C. 1, England, 1957.

This book presents a brief classification, the clinical features, and the treatment of the more common fractures. Discussion of fractures of the skull and facial bones is purposely omitted. The line drawings and x-ray illustrations are excellent. The discussion is necessarily limited. The recommended treatment is usually conservative. Certain recommended practices differ from the usual practice in orthopedic centers in the United States. On page 80, the excision of an avulsed fragment of a transverse vertebral process fracture is recommended. Such an operation, as primary treatment, is unusual and not often necessary. The discussion of fractures of the hip is excellent. With regard to fractures of the femoral shaft, traction and manipulation are recommended as routine procedures. The use of intramedullary nail fixation is mentioned for pathological fractures and for occasional use in cases of uncomplicated closed fractures. This is not in accordance with the present practice in the United States of using intramedullary nail fixation for practically all such fractures unless there is a contraindication to this method. There is an illustration of "gallows traction" for treatment of fractures of the femur in a young child; this method is similar to Bryant's traction used for this purpose in the United States. The illustration in the book does not show protection of the knees from hyperextension, and there is no discussion of the danger of vascular complications. The discussion of fractures of the metatarsals and phalanges is brief and probably oversimplified. Future editions should be slightly enlarged to include discussion of a wider range of fractures, including certain complicated common fractures. This book is primarily for students. It is of little value for the orthopedist, but it is an excellent quick reference book for a student or general practitioner.

QUERIES AND MINOR NOTES

PROCEDURES AFTER RADICAL MASTECTOMY

To the Editor:—*A 24-year-old woman, with two children, the last delivered in July, 1956, has had metastatic (axillary) adenocarcinoma of the left breast. The initial lesion was found in the upper outer quadrant. A radical mastectomy and axillary dissection were completed one week prior to the time of writing. If possible, adrenalectomy and hypophysectomy should be avoided. Chest x-ray and blood studies are normal. What is recommended for further management? Should x-ray sterilization or surgical removal of the gonads be done?*

M.D., Indiana.

Answer.—There is a marked difference of opinion in regard to the questions posed. This consultant feels that there is no adequate evidence that castration done as a complement to radical mastectomy is any better than castration done as a supplement when metastasis or recurrent disease becomes evident. Moreover, castration in a patient this age has the disadvantage of producing a severe menopause unnecessarily if the patient remains well. This patient should be irradiated over the internal mammary, supraclavicular, and axillary fields on the side which was operated on, and nothing further should be done now except for follow-up examinations.

STIMULATION OF INTESTINAL MOTILITY

To the Editor:—*Artificial stimulation of intestinal motility, as with neostigmine, has always been frowned upon by surgeons for postoperative use as being unphysiological. Recently a new product, pantothenyl alcohol, an alcohol of pantothenic acid, has been recommended for postoperative use to prevent distention after surgery. Would the use of this product be physiological in a case of gynecologic surgery where the intestine was only handled gently but not actually incised? Would its use be physiological in a case of intestinal surgery where the intestine was actually incised and sutured?*

James W. Davis, M.D., Leonard, Texas.

Answer.—The name pantothenic (acid) denotes the ubiquitous distribution of this material in foodstuffs. It is easily synthesized in significant quantities by bacteria found normally in the gastrointestinal tract, and it is a constituent of most cells in the body. Pharmacologically, pantothenic acid is involved in the coenzyme A system. A specific deficiency of pantothenic acid has been described in many laboratory animals; it has been produced in man by Bean and associates (*J. Clin. Invest.* 34:1085, 1955). Symptoms under these conditions varied but consisted chiefly of adrenal insufficiency; these occurred only after administration of a diet free of pantothenic acid and a potent antagonist to this vitamin. The gastrointestinal observations were confined to a depression of gastric secretion; there was no alteration in gastric motility. In studies by Gershberg and associates (*J. Nutrition* 39:107, 1949) on patients with a wide variety of deficiency and metabolic diseases, tolerance-excretion tests with pantothenic acid and alcohol of pantothenic acid administered intravenously failed to demonstrate a specific pantothenic acid deficiency, except in relation to pernicious anemia. Because of such observations and the wide distribution of pantothenic acid in the body and in food, the clinical existence of a deficiency of this substance would appear to be most unusual, even under preoperative and postoperative conditions. Thus, the rationale for the use of pantothenic acid would be determined more by its pharmacological action than by a presumed deficiency state.

Sclausero (*Gazz. med. ital.* 114:291, 1955; abstracted, *J. A. M. A.* 161:106 [May 5] 1956), Jacques (*Lancet* 2:861, 1951), and others have published favorable results concerning the use of pantothenic acid or pantothenol (alcohol of pantothenic acid) in the management of "intestinal paresis"; i. e., paralytic ileus in patients who had undergone abdominal or pelvic surgical procedures. Closer examination, however, suggests that time and coincidence, as well as the intravenously administered fluids, might have been equally important factors in the clinical response. Jacques's report, although based on only 16 patients with paralytic ileus, indicated that usually only one injection of pantothenic acid resulted in relief of the ileus. Other drugs, such as neostigmine and acetylcholine, previously had been ineffective, whereas pantothenic acid administered intravenously initiated prompt return of normal intestinal motility. Despite these reports the evidence is not yet entirely convincing. Further study of the usefulness of pantothenic acid in the management of postoperative distention seems desirable. Until favorable observations are reported by American s geons, the use of pantothenyl alcohol postoperati cannot be evaluated completely.

There would appear to be no physiological n pantothenic acid in "*a case of gynecologi* where the intestine was only handled gen actually incised." The early use of co

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

potential stimulating action upon the intestines after intestinal surgery would be regarded as unphysiological, since stimulation of the intestines at this stage is undesirable. The efficacy of drugs, such as neostigmine or acetylcholine, in postoperative paralytic ileus is highly questionable.

PREGNANCY AND HEREDITARY DISEASE

To the Editor:—*A 26-year-old woman, who has had three pregnancies in the past five years, had her first child succumb to lipid histiocytosis of phosphatide type (Niemann-Pick disease). Her second child was normal except for a minor congenital defect of the hand in the thumb. The third child, 8 months of age at time of writing, has stigmata consistent with Niemann-Pick disease, including an enlarged spleen and positive findings in the bone marrow. Is further pregnancy indicated?*

Robert E. Sandlin, M.D., Antioch, Calif.

Answer.—Niemann-Pick disease is a rare hereditary disease characterized by the accumulation of phosphatides in the reticuloendothelial system. Characteristic lipid-containing cells, known as Pick foam cells, may be found in all tissues. The condition is generally considered to be due to the action of a recessive gene.

If this is correct, both the father and the mother in question would be heterozygous or carriers of this gene. Each child that they have would have one chance in four of being affected and one chance in two of being heterozygous as its parents are. The fact that two affected children have already been produced would not lessen the chances of another child having the trait . Because the disease is fatal in affected children, the advisability of another pregnancy is very doubtful. The manner of preventing this, however, can best be determined by the parents in consultation with their physician. Irregular dominance has also been suggested as a mode of inheritance. If this is true in this instance, the chances of another affected child would not be lessened.

TEMPERATURE OF OPERATING ROOMS

To the Editor:—*What is the optimal temperature for an operating room? The particular operating room in question is located in the country and does not have air conditioning. Could not the windows to the outside air be opened during the summer months?*

M.D., New York.

Answer.—Common practice is to maintain operating rooms at a temperature of about 80 F (dry bulb). Humidity is important, and Clark, Orkin, and Rovenstine conclude that a better method is to use a wet-bulb thermometer and maintain the temperature at 75 F (wet bulb).

If an appropriate combination of temperature and humidity can be maintained, there is no objection to having the windows to the outside air open during the summer months, provided that two precautions are observed. First, the windows must be completely a effectively screened against all insects in the area. some areas it would be sufficient to screen agai flies and mosquitoes, but in other areas various small insects, such as midges, would have to be exclude requiring very fine mesh material. Second, the patie should be protected against drafts, which would ma it inadvisable to have the window open if there we enough wind to produce rapid air currents, ev though the outside temperature approximated tl ideal.

FAILURE OF EYELIDS TO CLOSE DURING SLEEP

To the Editor:—*The eyelids of a 4½-year-old boy not always close completely when he sleeps, leavi part of the eyeball exposed. Both eyes are usual involved. When the eyes are manually closed du ing sleep, the lids sometimes open again. In tl waking state there are no difficulties with volunta closure. The latter can be maintained against pre sure, and the tonus of the levators is good. Ther is no eye pathology and no exophthalmos, and th lids are well formed. Neurologically, the child entirely normal. His sleep is not interfered with b this defect, even when there is light. The mother i chiefly worried about possible trauma to the eye during sleep (from foreign bodies, insects, etc.). Ca the condition be disregarded?* M.D., New York.

Answer.—The failure of the eyelids to close durin sleep has been reported a number of times in th literature and is usually unassociated with pathology In the case cited, it would be interesting to not whether the eyes roll up sufficiently during sleep s that the corneas are completely covered by the partly closed lids. It would be the feeling of this consultant that, if the corneas are completely covered, no eventual trouble will arise from this situation. On the other hand, if the corneas are not covered, they may well dry out, erode, and ulcerate. In such a case, some bland ointment or artificial tears (methylcellulose) should be used each night on going to bed.

EXPOSURE OF EYES TO SOLDERING FUMES

To the Editor:—*A patient has been employed steadily for about 15 years as a tinsmith, and his job has been to solder and braze sheet metal and copper. Wh are the effects of muriatic acid and soldering fume on the cornea?*

M. L. Riccitelli, M.D., New Haven, Conn.

Answer.—The usual exposure of a tinsmith to soldering or brazing fumes should not involve any injury t the cornea. The fume composition would depend upo the flux used and the metal surface involved. When th soldering flux is muriatic acid or muriatic acid "cut" with zinc to form zinc chloride. the fume would contain, in addition to water vapor. a very small amount of hydrochloric acid and of zinc or copper, as the case may be, in the form of oxide. When as in brazing the flux is generally borax, this would be present in the fume. In neither instance would the concentration be such as to injure the cornea. Should the acid flux be spattered directly in the eye, an acid burn of the cornea would result, the severity depending upon the amount of acid involved and the duration of the contact. Years of observation of a large number of solderers have not disclosed any injuries to the cornea from fume exposure.

FIVE-YEAR MEDIAN

To the Editor:—*What is meant by the five-year median? Why is this statistic, which is used so much in comparing communicable disease reports, more advantageous than comparing reports year by year?*

M.D., Illinois.

Answer.—A five-year median is another expression of an average. It is the middle one of an array of five figures, usually those for five consecutive years. When a five-year median is used, there are always two figures less and two greater than the middle or median figure. Because many infectious diseases fluctuate widely in incidence from one year to another, it is considered desirable to compare a current figure with one that is less influenced by fluctuations. For this reason, median averages are preferred to the common or mean averages, the latter being subject to the influence of extreme variations which would result if just one year, of the five being reported, had an unusually high or low incidence. While it would not be misleading to compare a current figure with each of the previous five years, it usually is not done in current publications because of limitations of space. Furthermore, by using a median more valid comparison can usually be made.

CATARACT SURGERY IN A DIABETIC

To the Editor:—*Inasmuch as postoperative intraocular bleeding is commoner in recently controlled diabetics, when cataract surgery is required upon an uncontrolled diabetic, is it preferable to go directly ahead with the surgery and disregard the diabetic status until the postsurgical period?*

Herbert J. Rosen, M.D., Dover, N. J.

Answer.—It is good practice to stabilize the blood glucose in a diabetic who is to undergo cataract surgery. Since this operation is nearly always elective, sufficient time for this purpose is usually available. A sense of well-being in the patient is a valuable adjunct in ocular surgery. If circumstances are such that previous regulation is impossible and cataract extraction is necessary, it is better to operate with the blood glucose level a little elevated than to attempt to lower it suddenly. The latter procedure, especially if it produces a mild insulin shock, is likely to make an elderly patient restless, uncomfortable, and perhaps uncooperative. This, of course, increases the likelihood of hemorrhage or other surgical complication.

ETHER AND ALOPECIA

To the Editor:—*In the practice of anesthesiology one is frequently confronted with the statement that "ether makes the hair fall out." Is there any literature giving a scientific opinion on the subject?*

George T. Henderson, M.D., Bound Brook, N.J.

Answer.—None of the reference books on toxicology to which this consultant has access give ethyl ether as a cause of alopecia. Ether is said to be inert to metabolic processes and is largely eliminated in the expired air. In industry, 500 ppm of ethyl ether is the allowable maximum concentration which is said not to cause dizziness or injurious effects. Von Oettingen in his book "Poisoning" (New York, Harper & Brothers, 1952) gives a long list of symptoms from which workers industrially exposed to ether may suffer, but loss of hair is not among them. Patients undergoing surgical procedures that require ether anesthesia may be in poor health and debilitated, and this may cause "the hair to fall out." The patient or the relatives may attribute to the ether the loss of hair which is actually due to poor health.

EFFECT OF CITRATE AND POTASSIUM ON BLOOD

To the Editor:—*A patient is to receive an intravenously administered injection of 40,000,000 units of potassium penicillin G daily for three to six weeks. If the penicillin is buffered with sodium citrate, would there be enough citrate to affect blood coagulation? Would there be enough potassium in potassium penicillin G to affect the blood potassium?*

M.D., West Virginia.

Answer.—Assuming that the penicillin is administered by slow intravenous drip and that renal function is adequate, the blood potassium should not be raised to dangerously high levels by the administration of 40,000,000 units of potassium penicillin G daily. Further, since citrate is metabolized very rapidly by the liver, citrate intoxication does not occur unless the hepatic function is seriously impaired. In such an event the toxic effects are those of hypocalcemia. Prolonged blood coagulation does not occur *in vivo*, since it develops only when the blood calcium is reduced to 2.5 mg. per 100 cc. or less, a level incompatible with life.

AMYOTROPHIC LATERAL SCLEROSIS

To the Editor:—*Please supply information regarding a toxoid treatment for amyotrophic lateral sclerosis.*

Joseph M. Silver, M.D., Fitchburg, Mass.

Answer.—This consultant has no information regarding a toxoid treatment for amyotrophic lateral sclerosis. At the present time, the etiology of this disease has not been ascertained, and there is no known specific treatment for it.

SEVERED RECURRENT LARYNGEAL NERVE

To the Editor:—*What is the best surgical technique of uniting the cut ends of a severed recurrent laryngeal nerve?*

M.D., New York.

Answer.—A severed recurrent laryngeal nerve can be united, as any other small nerve, by meticulous approximation of its ends with extremely fine silk sutures, such as are used in eye surgery. Unfortunately, however, this consultant knows of no report of a severed nerve which has recovered its function after anastomosis. Anastomosis of the nerves was once advocated by Dr. Lahey, but no reports of successful return of function were made in the case of patients who had had the nerve actually severed. The chief advantage of exploration of the recurrent nerve after its paralysis has been observed is to remove any ligatures which might have inadvertently been placed on the nerve. If such a ligature is removed promptly, the nerve will recover its function.

VAGINAL CHILDBIRTH AFTER CESAREAN SECTION

To the Editor:—*A 30-year-old woman has presented herself for prenatal care. She has had four pregnancies, three with delivery by the vaginal route, but the second pregnancy was complicated by third trimester bleeding, and a cesarean section was done, with delivery of a living 4-lb. baby. Can it be assumed that the cesarean scar has healed so well as to be no factor in the approaching delivery, or have the last two deliveries through the birth canal tested the scar to the limit? Are there any statistics on uterine-scar ruptures after several uneventful deliveries from below?*

Lester Lando, M.D., Monsey, N. Y.

Answer.—The delivery of babies through the birth canal after previous cesarean section is no valid test of a uterine scar. Serious and fatal uterine ruptures have occurred after such deliveries in women who had been subjected to previous cesarean sections. If it is decided that this patient is to be delivered from below, she should be cautioned to come into the hospital at the first sign of impending labor. The labor should be carefully supervised, so that any unusual tenderness of the uterus can be ascertained early and properly evaluated. The child should be delivered by outlet forceps when dilatation is complete and the head has reached the pelvic floor.

Eastman reports that on his service the incidence of uterine rupture after previous cesarean section is 2.1% —1% in pregnancy and 1.1% in labor. The maternal mortality after uterine rupture is at least 10%. Thus, the mortality from uterine rupture in women who have had previous abdominal deliveries is about 0.2%, about twice the average risk of cesarean section today. Although this increased hazard is not great, uterine rupture entails an inordinately high infant loss and the probable termination of future childbearing. Thus, t indication for the initial abdominal delivery must given the greatest consideration, for the uterine sc may well make future childbearing an abnormal fu tion.

RECTAL INCONTINENCE

To the Editor:—*Is any kind of pouch or bag mac which would be helpful when there is complete lo of sphincter control in the rectum?*

George B. Lawson, M.D., Roanoke, Va.

Answer.—There is no effective bag or appliance fo the control of fecal material in rectal incontinence. Tl only effective solution is a successful repair of tl defect.

INGESTION OF FOREIGN BODIES

To the Editor:—*In answer to a query about the i gestion of foreign bodies (*The Journal*, July 2 1957, page 1422), the consultant says: "Sharpl pointed radiopaque foreign bodies that do not leav the stomach or pass through the duodenum occasionally require removal by transgastric means."*

What of the magnetic removal of such objec (Equen and others: Nail in Duodenum Removed by Magnet, J. A. M. A. 135:432 [Oct. 18] 1947; Equen: *Magnetic Removal of Foreign Bodies, Springfield Ill., Charles C Thomas, Publisher, 1957)? In the latter publication the author summarized more thar 200 cases of removal of ferrous bodies from the upper gastrointestinal tract with the magnet withou a single fatality. When the patient is an infant oi small child, removal of such bodies by transgastric or transduodenal means is both difficult and dangerous, involving perhaps a week of hospitalization and intravenously given fluids. Just giving fluids into the small veins of such a patient is no light undertaking.*

L. Minor Blackford, M.D.
104 Ponce De Leon Ave. N. E.
Atlanta 8, Ga.

The above comment was referred to the consultant who answered the original query, and his reply follows.—Ed.

To the Editor:—*The removal of ferrous foreign bodies from the upper part of the gastrointestinal tract by magnet has been proved feasible and satisfactory by Dr. Equen, who probably has had the largest experience of anyone with this method. It is difficult to assess the relative hazards of the use of the magnet and of surgical procedures. However, little additional hazard or difficulty should be encountered in the few instances in which intravenous administration of fluids is indicated (Miles and Harris: Venostomy, an Improved "Cut-Down" Procedure in Infants and Children, J. A. M. A. 161:619-621 [June 16] 1956).*

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

A. M. A. and AHA
Ask Exclusive Radio Bands . .
Poliomyelitis Cases Down 80%
in Two Years . .
Serious Reactions to Penicillin
Increasing . .
Health Council Acts to Provide
More Health Personnel . .

A. M. A. ENDORSES SPECIAL BROADCAST BAND FOR PHYSICIANS

The American Medical Association believes that the future of medical practice calls for the setting aside of special radio bands for emergency use by doctors and of noncommercial FM channels for educational purposes.

The Association has filed a brief with the Federal Communications Commission on endorsing the allocation nationwide of six 30-kilocycle channels around the 161 megacycle area in the radio spectrum for remote pickup broadcast stations on an exclusive basis. Similarly, it urged use of several channels in the same area for educational broadcasts.

"The Association believes that the use of numerous remote pickup broadcast stations in conjunction with noncommercial FM broadcast stations represents an effective method of developing the potential of educational programs," the A. M. A. informed the FCC. "To make full utilization of remote pickup broadcast stations as an integral part of broadcast programs, it is essential that adequate clear channels be reserved for these remote pickup broadcast stations."

The brief also notes that the present availability of radio communication channels for the medical profession is very limited and that the "value of this medium in the practice of medicine has not been fully realized."

In a separate brief, the American Hospital Association asked the FCC to set aside additional channels for hospitals and hospital associations for similar purposes. The AHA cited an urgent need for special communications for day-to-day operations as well as disaster conditions.

AHA also pointed out the need for effective communications with ambulances and automobiles of staff physicians and surgeons.

SECRETARY FOLSOM URGES PUBLIC SUPPORT FOR SALK VACCINE CAMPAIGN

Urging public support for the Salk poliomyelitis vaccine campaign, Secretary Folsom points out that "the means to avert the suffering and anguish caused by polio are at hand," and "it is possible to give paralytic polio a knockout blow within the next year."

Cooperating in the drive to induce the public to protect itself are the American Medical Association, State and Territorial Health Officers, the Advertising Council, and the National Foundation for Infantile Paralysis, as well as the U. S. Public Health Service.

The Secretary of the Department of Health, Education, and Welfare reported that paralytic poliomyelitis had decreased a spectacular 80% during the last two years but that "millions of Americans under 40 still have not received full vaccine protection and thus are needlessly risking disability or even death."

Paralytic cases so far this year have totaled 1,576, in contrast to 7,886 cases for the comparable period two years ago, before widespread use of Salk vaccine, and 5,241 cases last year. Although the vaccine is designed to prevent paralytic poliomyelitis, the total number of cases this year also has decreased to 4,851 in contrast to 21,667 two years ago, 12,156 a year ago, and an average of 24,928 over the past five years.

Mr. Folsom reviewed the ups and downs of the Salk vaccination campaign and the reasons behind the nationwide drive, started early this year, to protect the American public.

He pointed out that a year ago production was cut back because use of the vaccine had dropped sharply and supplies piled up in warehouses. Subsequently the A. M. A. initiated its campaign, and by last spring demand had risen and again the vaccine was in short supply and many community and industry vaccination campaigns were postponed.

Now, the Secretary said, supplies are beginning to pile up again, "and this is the best time for medical societies, local health departments, schools, industries and individual citizens and physicians to make sure that everyone who needs protection gets it. If unvaccinated persons will start now, they can get the full schedule of three doses before the next polio season begins."

Mr. Folsom, noting that more than 37 million Americans under 40 have received no vaccine, and 44 million have had only one or two doses, said:

(Continued on next page)

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digitalis
is needed

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"If one digitalis agent were to be recommended for its adaptability to the many and varied clinical contingencies, we believe Digoxin would be [a] drug of choice."

Lown, B., and Levine, S. A.:
Current Concepts in Digitalis Therapy, Boston,
Little, Brown & Company, 1954, p. 23, par. 2.

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

"It will be a tragedy if, simply because of public apathy, vaccine which might prevent paralysis or even death lies on the shelf unused."

In connection with the Secretary's appeal, Surgeon General Burney gave this summary of the situation:

Incidence.—Only 63 cases of paralytic poliomyelitis among the 28 million persons who have received three shots of vaccine, and not all of these confirmed. Three doses are estimated to reduce paralytic poliomyelitis incidence by up to 90%.

Vaccine Use.—More than 72 million Americans already have received one or more doses—out of a total population of 109 millions persons under 40. Estimates indicate: Of the 67 million persons in the priority group, under 20 years of age and expectant mothers, 25 million have received all three injections, 22 million 2 injections, 11 million 1 injection, and 9 million no vaccine. Attention should be given particularly to vaccinating teenagers. Of the 42 million persons 20 through 39 years old, 14 million have been vaccinated—3 million with 3 doses, 5 million with 2 doses, and 6 million with 1 dose. But 28 million adults have had no vaccine.

FOOD AND DRUG ADMINISTRATION REPORTS RISE IN PENICILLIN REACTIONS

The fifth annual Symposium on Antibiotics heard a report from Dr. Henry Welch, chief of the Food and Drug Administration division of antibiotics, that serious reactions to penicillin are on the increase. Since 1945, Dr. Welch told the meeting, isolated reports of reactions with a relatively high percentage of fatalities have been appearing in medical literature.

The FDA survey, covering the principal antibiotics, showed a substantially higher number of reactions to penicillin than to other antibiotics. A third of the reported reactions to all antibiotics were classified as life-threatening and about nine-tenths of these were attributed to penicillin.

His report has this comment: "The trend of increase in serious reactions, especially from penicillin given by intramuscular injection, shows there should be a clear-cut indication of need before the drug is administered. The study of case histories indicates that there has not been indiscriminate use of penicillin by physicians."

Dr Welch said the number of reactions to penicillin is still small when considering that millions of persons receive it each year and that it has saved many lives. An increase is to be expected, he added, in the wise use of a highly antigenic substance.

HEALTH COUNCIL LOOKING INTO CAREERS IN HEALTH

A new commission, this one sponsored by the National Health Council, is looking into ways "to meet the acute need for qualified health personnel in the United States." It is called the Commission on Health Careers with Dr. Leonard A. Scheele, former surgeon general of the Public Health Service, as chairman. Since leaving the government, Dr. Scheele has been president of Warner-Chilcott Laboratories.

The commission is made up of persons in industry and other fields. It has one other physician member, Dr. Herman Hilleboe, health commissioner for New York State. Another member is former Sen. Herbert Lehman (D., N. Y.), who was prominent in health and welfare legislation while in the Senate.

Basil O'Connor, president of the National Health Council, believes that lack of manpower "poses the biggest threat not only to our present health services but to the future progress of medical science." He said workers in more than 150 health occupations also guard the well-being of the public and the great majority of these posts are "dangerously understaffed."

ASIAN INFLUENZA ADVISORY GROUP REPORTS ON VACCINATIONS

Adults should be given a full cubic centimeter of the Asian influenza vaccine for best results, while children under 5 may have two inoculations of 0.1 cc. This is the latest recommendation of a Public Health Service advisory committee on influenza vaccine which reported to Surgeon General Burney. The committee said the children's doses should be given a week apart, injected intracutaneously.

The PHS announcement declared in part: "The committee recommended that only the subcutaneous inoculation of 1.0 cc. be endorsed for general use in adults. It noted that in certain special instances 0.1 cc. given intracutaneously might be used advantageously but physicians using this method must rely on their own judgment regarding its usefulness in each instance. The use of two 0.1 cc. intracutaneous doses, separated by at least one week in children under the age of five, as has been recommended by the American Academy of Pediatrics, was recognized as an acceptable procedure."

71,570 REHABILITATED PLACED ON JOBS

According to the Office of Vocational Rehabilitation, 71,570 disabled, a record number, were restored to useful work in the last fiscal year through public training-treatment programs. The last fiscal year's total was 66,296.

OVR Director Mary E. Switzer said the increase "was not as great as had been expected, but was encouraging since 41 of the 52 states and territories showed increases."

Information comes from state rehabilitation agencies, which work in cooperation with OVR, and private agencies, which receive some OVR support. Public agencies are credited with placing 70,939 in jobs after helping them to overcome difficulties, and 631 were placed through the efforts of voluntary, nongovernment organizations.

An additional 145,000 disabled were receiving rehabilitation services from public agencies as the year ended, most of whom are expected eventually to be restored to productive work. Pennsylvania's total of 6,024 restored to jobs led the nation.

OVR estimates that those rehabilitated by public agencies (70,939) in the 12 months preceding last July 1 will increase their annual earnings from $18,900,000 to about $127,600,000 their first ye the job, and will add 109 million man-hours t nation's production potential.

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SOCIETY	PRESIDENT	SECRETARY	MEETING
American			
Public Health Association	John W. Knutson, Washington, D. C.	R. M. Atwater, 1790 Broadway, New York 19	Cleveland, Nov. 11-15
Radium Society	Ralph T. Ogden, Hartford 14, Conn.	Theodore R. Miller, 139 East 36th St., New York 16	*Hollywood, Fla., Mar. 27-29*
Rheumatism Assn.	L. Maxwell Lockie, Buffalo 2, N. Y.	Edward F. Hartung, 580 Park Ave., New York 21	San Francisco, June 20-21
Roentgen Ray Society	W. Edward Chamberlain, Philadelphia 40	Barton R. Young, Germantown Hosp., Philadelphia 44	
School Health Assn.	Fred V. Hein, Chicago	A. O. DeWeese, 515 E. Main St., Kent, Ohio	*Cleveland, Nov. 16*
Society for [illegible]	[illegible] V. Eb[illegible]	[illegible] Farber, 550 1st Ave., New York 16	Atlantic City, N. J., May 5
Society for [illegible]	[illegible] Warner, [illegible]	[illegible] C. Erickson, 858 Madison Ave., Memphis 3, Tenn.	Philadelphia, Apr. 14-18
Society for [illegible]	[illegible]aver, Boston	Harold Hodge, Univ. of Rochester, Rochester 20, N. Y.	Philadelphia, Apr. 13-18
Society for [illegible]	[illegible] M. McLane, New York 28	H. H. Thomas, 920 S. 19th St., Birmingham, Ala.	Los Angeles, Apr. 18-20
Society of A[illegible]	[illegible] M. Pallin, Brooklyn, N. Y.	J. E. Remlinger, Jr., 188 W. Randolph St., Chicago 1	
Society of Biological Chemists	John T. Edsall, Cambridge, Mass.	Philip Handler, Duke University, Durham, N. C.	Philadelphia, Apr. 13-18
Society of Clinical Pathologists	John L. Goforth, Dallas, Texas	C. G. Culbertson, 1040 W. Michigan St., Indianapolis 6	
Society of Maxillofacial Surgeons	Douglas B. Parker, New Orleans	John A. Drummond, 1414 Drummond St., Montreal 25, Can.	
Society of Plastic and Reconstructive Surgery	S. Milton Dupertuis, Pittsburgh 13	Kenneth L. Pickrell, Duke Univ. Hosp., Durham, N.C.	San Francisco, Nov. 3-8
Society of Tropical Medicine & Hygiene	Justin M. Andrews, Washington, D. C.	R. B. Hill, 3575 St. Gaudens Rd., Miami 33, Fla.	[illegible] Oct. 30-Nov. 2
Surgical Assn.	John H. Mulholland, New York 16	R. Kennedy Gilchrist, 59 E. Madison St., Chicago [illegible]	[illegible] 16-18
Therapeutic Society	Arthur C. De Graff, New York	O. B. Hunter, Jr., 915 19th St., N.W., Washin[illegible]	[illegible] June 19-22
Trudeau Society	Theodore L. Badger, Boston 16	E. P. K. Fenger, 1790 Broadway, New York 1[illegible]	Philadelphia, May 19-23
Urological Assn.	William J. Baker, Chicago	Samuel L. Raines, 188 S. Bellevue Blvd., Memphis, Tenn.	New Orleans, La., Apr. 28-May 1
Venereal Disease Assn.	Charles R. Rein, New York 19	S. R. Taggart, 300 Indiana Ave., N.W., Wash. 1, D. C.	
Veterinary Medical Assn.	W. W. Armistead, East Lansing, Mich.	*J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5*	
Assn. for Research in Nervous & Ment. Dis.	Francis Braceland, Hartford, Conn.	*Rollo J. Masselink, 700 W. 168th St., New York 32*	New York, Dec. 13-14
Assn. for Research [illegible]	[illegible] Sanders, St. Louis	Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6	San Francisco '58
Assn. of American [illegible]	[illegible] B. Youmans, Nashville 5, Tenn.	Dean F. Smiley, 2530 Ridge Ave., Evanston, Ill.	Atlantic City, N. J., Oct. 21-23
Assn. of American [illegible]	[illegible]iam S. Tillett, New York	P. B. Beeson, Yale U. Sch. of Med., New Haven 11, Conn.	Atlantic City, N. J., May 6-7
Assn. of Life Ins. Med. Dir. of America	Edson E. Getman, New York	*Royal S. Schaaf, P. O. Box 594, Newark 1, N. J.*	New York, Oct. 23-25
Assn. of Medical [illegible]	Mr. Lee Allen, Iowa City	Miss Rose M. Reynolds, 42nd and Dewey Ave., Omaha 5	
Assn. of Military [illegible]	A. R. Koontz, [illegible]	R. E. Bitner, 1726 I St., N.W., Washington 6, D. C.	Washington, D. C., Oct. 28-30
Assn. of State & [illegible]	Franklin P. Yo[illegible]	[illegible] F. Shanholtz, State Office Bldg., Richmond, Va.	Washington, D. C., Nov. 1-9
Biological Photographic Assn.	Mr. H. Lou Gib[illegible]	Miss J. Waters, Box 1668, Grand Central P. O., N. Y. 17	
Central Assn. of Ob. & Gyn.	*Arthur B. Hunt, Rochester, Minn.*	*Edwin J. DeCosta, 104 S. Michigan Ave., Chicago 3*	*Omaha, Oct. 24-26*
Central N[illegible] Assn.	G. Wilse Robinson Jr., Kansas City, Mo.	*R. M. Patterson, Ohio S. Univ. Col. of Med., Columbus 10, Ohio*	*Dallas, Tex., Oct. 18-19*
Central S[illegible]	[illegible] Kohbstea[illegible]	William S. Jordan, Jr., 2109 Adelbert Rd., Cleveland 6	Chicago, 1957
Central S[illegible]	[illegible] Jenkins [illegible]	Charles D. Branch, 1002 North St., Peoria, Ill.	Columbus, O., Feb. 20-22
Clinical [illegible]	[illegible] Garber, [illegible]	Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn.	
College o[illegible]	[illegible] D. Anderson, Miami, Fla.	A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1	
Gerontological Society	R. J. Havighur, Chicago 37	Nathan W. Shock, Baltimore City Hospitals, Baltimore 24	Oct. 31-Nov. 2
Industrial Medical Association	Jerome W. Shilling, Los Angeles 55	H. Glenn Gardiner, 3210 Watling St., East Chicago, Ind.	April 23
Interstate Postgrad. Med. Assn. of N. A.	J. Mather Pfeiffenberger, Alton, Illinois	Erwin R. Schmidt, Box 1109, Madison 1, Wis.	
Medical Library Assn.	Thomas E. Keys, Rochester, Minn.	Mrs. H. T. Perkins, 333 Cedar St., New Haven 11, Conn.	Rochester, Minn., June 2-6
National Medical Assn.	*A. M. Townsend, St. Louis 6, Mo.*	John T. Givens, 1108 Church St., Norfolk 10, Va.	Milwaukee, Aug. 11-18
National Multiple Sclerosis Society	*Mr. Ralph C. Glock, New York*	*Mr. Donald Vail, 257 Fourth Ave., New York 10*	New York, Mar. 11
National Proctologic Assn.	R. A. Winters, Chicago	George E. Mueller, 59 E. Madison St., Chicago 2	
National Tuberculosis Assn.	William M. Morgan, New York 19	Mrs. Wallace B. Whi[illegible]	Philadelphia, May 18-23
Neurosurgical Society of America	Lyle A. French, [illegible]	Frank P. Smith, 260 [illegible]	
Radiological Society of North America	*C. Edgar Virden* [illegible]	D. S. Childs, 713 E. [illegible]	Chicago, Nov. 17-22
Society for Investigative Dermatology	Walter C. Lobitz, [illegible]	Herman Beerman, 25[illegible]	San Francisco, June 21-22
Society for Pediatric Research	*Edward Pratt, Dallas 19, Tex.*	Sydney S. Gellis, 818 [illegible]	Atlantic City, N. J., May 6-7
Society for Vascular Surgery	Arthur [illegible] New York [illegible]	Henry Swan, 4200 East 9th Ave., Denver 20	
Society of American Bacteriologists	P. W. [illegible]	[illegible] Foster, Univ. of Wisconsin, Madison 6, Wis.	Chicago, Apr. 27-May 1
Society of [illegible]	Margare[illegible]	[illegible] N. Thompson, 2010 Wilshire Blvd., Los Angeles 57	
Society of [illegible]	[illegible]	[illegible]lbritten, Jr., Univ. of Kans., Kansas City, Kan.	
Society of N[illegible]	[illegible]	[illegible] S. Ray, 525 E. 68th St., New York 21	
Society of University Surgeons	Harold A. Zintel, New York	James Hardy, University Medical Center, Jackson, Miss.	
Southeastern Surgical Congress	Howard Mahorner, New Orleans 13, La.	B. T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, [illegible]	[illegible] 10-13
Southern Medical Assn.	J. P. Culpepper Jr., Hattiesburg, Miss.	Mr. V. O. Foster, Empire Bldg., Birmingham 3, [illegible]	[illegible] Nov. 11-14
Southern Surgical Assn.	Floyd W. McRae, Atlanta, Ga.	George G. Finney, 2947 St. Paul St., Baltimore 1[illegible]	[illegible] W. Va., Dec. 10-12
Southwestern Medical Assn.	Celso C. Stapp, El Paso, Texas	Russell L. Deter, 1501 Arizona St., El Paso, Tex.	
Southwestern Surgical Congress	Kenneth C. Sawyer, Denver	C. M. O'Leary, 207 Plaza Court Bldg., Oklahom[illegible]	[illegible] Mar. 31-Apr. 2
Stud[illegible]	Mr. Robert Rakel, Cincinnati 19	Mr. Russell F. Staudacher, 510 N. Dearborn St. [illegible]	[illegible] 1-4
The [illegible]	[illegible] Samuels, Salt Lake City	H. H. Turner, 1200 N. Walker St., Oklahoma [illegible]	[illegible] June 19-21
U. S[illegible]	[illegible] Rosser, Dallas, Texas	Karl Meyer, 1516 Lake Shore Dr., Chicago	
Western Industrial Medic[illegible]	[illegible] D. McKinnon, Los Angeles	Edward J. Zaik, 740 S. Olive St., *Los Angeles 14*	
Western Orthopedic Assn.	[illegible] Mathews, Beverly Hills, Calif.	Walter Scott, 354 21st St., Oakland 12, Calif.	Santa Barbara, Calif., Oct. 20-21
Western Society of Electro-Encephalography	Donald B. Lindsley, Los Angeles 24	Kenneth A. Blinn, 4120 Atlantic Ave., *Long Beach, Calif.*	
Western Surgical Assn.	Everett P. Coleman, Canton, Ill.	John T. Reynolds, 612 N. Michigan Blvd., Chicago 11	Salt Lake City, Nov. 21-23
Woman's Auxiliary to the Am. Med. Assn.	Mrs. Paul C. Craig, Wyomissing, Pa.	Miss Margaret Wolfe, 535 N. Dearborn St., Chicago 10	San Francisco, June 23-27
World Medical Assn.	J. A. Bustamante, Havana, Cuba	Louis H. Bauer, 10 Columbus Circle, New York 19	

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[1] Coan, J. P., McAlpine, J. C., and Boone, J. A.: J. South Carolina M. A. 51:417 (Dec.) 1955.

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